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WAR

"Fools say that you can only gain experience at your own expense, but I have always contrived to gain my experience at the expense of others."—PRINCE BISMARCK.

WAR

REPRODUCED WITH AMENDMENTS FROM THE ARTICLE IN THE LAST EDITION OF THE "ENCYCLOPÆDIA BRITANNICA"

TO WHICH IS ADDED

AN ESSAY ON MILITARY LITERATURE AND A LIST OF BOOKS

WITH BRIEF COMMENTS

BY

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PREFACE.

In preparing for separate publication the article "War" from the "Encyclopædia Britannica," I have made a few changes. I had wished, when the article was first written, to have supplied some assistance to those who desire to be acquainted with the most important works on the subject. Space forbad more than a brief reference to the most recent and most valuable books. I have now replaced this with an independent essay, giving a slight sketch of modern military literature, which will, I hope, be at least a step towards the object I have in view. Always preferring the "I" to the "we" dialect, I have in this essay adopted it in place of the latter, which seemed more suitable to the pages of a work in which many were engaged. I have, as far as possible, mentioned those books of which English or French translations exist; but I have thought it better to mention the most important works in different languages, though not translated.

I have made, on the demand of a kind critic in the *Broad Arrow*, a special addition to the part of the article "War" about the work of the combined arms, dealing with the question of the moral and material effects respectively of infantry and artillery fire. Space alone prevented my touching, in the original article, upon this

much-debated and most important question, which I feared to deal with unless I could devote to it more room than I then had at my disposal.

Otherwise, the essay, with a few trifling verbal alterations, stands as it did. I have to apologise to my American readers for a ludicrous slip by which, in the original article, I substituted the name of "Longstreet" for "Stuart," in speaking of the American cavalry of the civil war. It escaped my notice till I came to revise my work. Oddly enough, none of my critics noticed it till I had finally printed off the corrected edition as it now stands, with Stuart's name in its proper place.

I have thought it better to reserve for this preface, and not to incorporate in the text, a notice of certain important questions which have come into prominence within the last few months.

The art of war is continually progressing. That is a truth which has been strongly urged in the following article. Events which have occurred since it was written have illustrated the truth more forcibly than any arguments could have done. We have seen the principles of modern war officially sanctioned within the last year by the publication of the French, the German, and the English regulations for tactical exercises. Furthermore, changes in the progress of scientific discovery, which a year ago had scarcely passed beyond the experimental stage, have now arrived at a condition which forces upon us questions as to the effect they will produce in future war.

The invention of "smokeless" and so-called "noiseless" powder, the practical application to shell-composition of "high explosives," are all facts which can no longer be

ignored by the soldier who desires to realise the nature of future battles.

After a careful consideration, however, I have found very little to modify in the statements based upon the practical experience of war which are set forth in the article as originally published in the "Encyclopædia Britannica." The text-books now published in France and Germany confirm the general views expressed in it. Our own drill regulations are a more tentative and hesitating step in the same direction. It is natural that that should be so. The whole of the armies of France and Germany, almost the whole of the two nations, have had their attention forcibly directed to the new conditions of war. In England there yet survive officers who talk as though the experiences of the Crimea were the only "practical" experiences; as though the blood-stained fields of France and Turkey supplied us only with "theoretical" lessons. It is the old story. Horace foretold our experience when he declared, as a permanent fact of human nature, that you get at men's minds through their ears more slowly than through their eyes. It is natural, therefore, that those who in England are pressing present facts upon the attention of the army should have a far more difficult task than those who work for a similar purpose in Germany and in France. It would be untrue to say that we have any longer an uphill fight. In principle the battle is won. Unfortunately we need to win not only in principle but in practice, and the time is short. I should suppose that there is no doubt that the present drill-book can only be the precursor of our final adoption in practice of the principles which are now universally acknowledged.

I may venture also to hope that certain undoubted mechanical imperfections in the mere drill routine which have shown themselves, wherever the present drill-book has been practically used, will lead to the adoption of the principle I have advocated, that Aldershot, and not Pall-Mall, is the place for the working out of practical tactics.

To turn to the changes involved in the scientific development. I do not think that anything that has been here urged as to the change in the moral aspect of discipline and tactics is likely to be modified by smokeless or even by "noiseless" powder. It is true that historically noise played a not unimportant part in making the old formations impossible. But that which I have described under the phrase "catalepsy"—the intense absorption involved in the use of a weapon which can be employed so frequently as the modern infantry arm—was even more effective in preventing words of command from being heard by large bodies of men. Moreover, the one decisive fact, that line formations never were or could be employed unbroken for long distances, and that all our actual fighting must now take place over long distances, would be unaffected even if battles ceased to be noisy at all. Until, however, the next great battle takes place we can none of us judge how far the diminished noise of the small-arm will affect the general noise of a battle. There will be no temptation whatever to diminish the noise of bursting shells, for this noise will not trouble friends, but enemies. It is as certain that an actually "noiseless" powder will never be invented as it is certain that the circle will never be squared. Ballistic motion implies concussion. Concussion implies noise. While, therefore, the powder of

the small-arm may produce a very different kind of noise from anything that we have yet known, it is very doubtful how far and to what extent the noise of artillery guns and shells will be diminished.

The apparently absolute success now attained in the creation of a "smokeless" powder will undoubtedly affect many of the factors of past battles. As far as it is possible to judge without the experience of war, one at least of these will be to increase the importance of "quick-firing" guns. A Nordenfelt behind any cover, such as a bush, would be completely invisible if it emitted no smoke. It would not be so easy to conceal a gun-detachment, and still less a battery.

The general effect of "smokeless" powder will probably be to render a defensive position more difficult to approach. The assailants moving towards any well-chosen position ought to be, during the deadly period of action, completely exposed to view, while it ought not to be difficult to conceal entirely the position actually occupied by defenders who do not indicate their line by any puffs of smoke.

It is scarcely safe to go further in probing in this manner into the future.

According to all the experiments of which we know, it is scarcely possible to exaggerate the effect likely to be produced by the adaptation of high explosives to artillery. The French have carried these experiments much farther than any other nation. Their experiences have, however, been confirmed by the results obtained both in Germany and in England. It is hardly too much to say that according to the present stage of our knowledge the effect of high explosives is to put it within the power of field-

artillery to demolish permanent fortifications in all of their present forms. This is so far recognised that both France and Germany believe that the whole of the vast expenditure of France upon her frontier fortresses has from this invention ceased to guarantee her against direct attack. The whole future of permanent fortification is therefore at present dependent on this question of the power of high explosives. Even field defences, earthworks and the like, have undoubtedly lost much of their value from this new development of artillery power. On the other hand, as far as we yet know, it is not possible to obtain a high explosive which will keep its condition for a long period. Nor will these high explosives bear much rough usage without deterioration. Both France and Germany look upon it as certain that it will be necessary to accept this fact, and to meet it by constant replacement of material.

It is clear at once that these facts will materially affect both strategy and tactics. Strategy will be affected, because it will be possible to carry out great movements with less regard to the influence of fortresses than was formerly necessary. The difficulties involved in the constant replacement of material will also seriously affect the system of supply of armies in the field.

As regards tactics, the change in this respect will, like most other improvements in artillery, tend to favour offence rather than defence.

Looking at the changes as a whole which have thus lately, almost with a rush, come upon us, it is, I think, safe to say, from the experience of the past, that they will in all probability involve changes on the battle-field which

no one can as yet foresee. On the other hand, it is equally certain, from the same experience, that that army will be best ready to meet them which has the most carefully prepared itself for the conditions of modern war. There are elements in it different from war in the past which are now in their essential characteristics fixed and certain. What those are it is the main purpose of the present volume to set forth. Changes will come, but the clock will not work backwards. The more rapid the changes, the more completely does the distant past, which cannot be recalled, cease to be an adequate standard for determining the preparation of armies for war—the more must we depend on a careful study of the conditions of the present applied to the collated experiences of past war, and more especially of the most recent wars, in which the conditions were most nearly analogous to those we shall have to face.

WAR.

WHATEVER definition of the word "army" be adopted, the fact that it is a body of men organised for the effective employment of *arms* is the essence of it. Hence the most effective organisation and employment of armies in active warfare at any given period has always been determined by the nature of the arms in use at the time. The laboratory and workshops of science in recent years have in fact produced and forced on a change in the method of fighting, which it is safe to say was not foreseen by any one of the inventors whose skill make it necessary. And yet the change is of such a kind that, though due to the development of very material things, as, for instance, the greater rapidity of fire, the greater range of weapons, and the like, it is much more remarkable in its effect on the spirit of armies and the nature of fighting discipline than in almost any other aspect.

Modern changes in the art of *war*.

In all periods of war, under all conditions of arms, the moral forces which affect armies have been the great determining factors of victory and defeat. From a date much earlier than the day when Cæsar, defeated at Dyrrachium, gained the empire of the world by so acting as to restore the *morale* of his army before the great contest at Pharsalia, it has been on this nice feeling of the moral pulse of armies that the skill of great commanders has chiefly depended. In that respect there is nothing new in the

Effect of changes in arms on the nature of fighting discipline.

modern conditions of war. But the sequence by which the development of arms has changed the moral pivot of military power in our own times is so remarkable that it deserves to receive a somewhat careful historical statement at the outset of this article. Unless it is understood the lessons of modern fighting cannot be learnt; for there has not yet occurred a modern war in which the principles of modern fighting, as they are now universally understood among the most thoughtful soldiers of all nations, have been deliberately applied to action, after those principles have been realised and worked out in practice during peace time. And yet it is among the first of these principles that for success in our days careful peace practice, adapted to the actual conditions of fighting, must precede the entry on a campaign.

Experience of recent campaigns.

When letters from the seat of war in 1866 brought home to Europe the effect which the breechloader was producing in determining the contest, the first impression was that of simple consternation. It was supposed that Prussia, by the possession of that weapon alone, had made herself mistress of Europe. Gradually it came to be known that the secret of Prussian power lay, not in her breechloader alone, but at least as much in her perfect organisation. In 1870 her scarcely less startling successes tended for a time to produce an effect almost as blinding upon the eyes of those who watched them. There was a disposition to assume that whatever had been done in the war by the Prussians was, by the deliberate choice and determination of the best and most successful soldiers in Europe, shown to be the best thing that could be done under the circumstances. The exhaustive statement of facts contained in the Prussian official narrative and in the regimental histories, and the evidence of eye-witnesses innumerable, have, however, gradually shown that that was a mistake. Valuable as

the experiences of the 1870 campaign are for soldiers of all nations, the Prussian successes were certainly not due to the carrying out of what are now regarded by the best Prussian officers themselves as the principles which ought to determine practice in future wars. During the course of the war itself, the Prussian army, prepared by the soundest peace training to adapt itself to whatever conditions it met with, was continually and progressively modifying its practice under the experience of conditions which it had been impossible fully to anticipate.

"Open-order" formations.

It is upon the surface of the facts that the extreme loss of life suddenly occasioned at particular points by the effectiveness of the fire of the new weapons, both of artillery and infantry, compelled the gradual abandonment of close formations of men, massed together in dense columns or even in closed lines, and the gradual adoption of what are known as "skirmishing" or open-order formations. In other words, when the French fire fell upon the solid columns of the advancing Prussians, the column instinctively scattered. The officers and non-commissioned officers were often lost in very large proportion, and during the actual course of the fighting a method of attack was adopted which proceeded by successive swarms of dispersed men taking advantage of such shelter as the ground permitted. The noise of the rapid breechloader, and the crash of an artillery able to fire much more frequently than in former campaigns, and, moreover, accumulated in much greater masses than had ever been the case before, made words of command inaudible at a distance. Hence it came to pass that small parties of men, once launched into an infantry fight, were virtually beyond all control on the part of superior officers. All that these could do to influence the action was to determine the direction and object of the first attack of each fraction, and then to furnish it with

fresh supports at the proper moment, sending them forward in such a way as to cause their blows to be delivered in the most telling direction.

Importance of the change.

Here then was the great change which had come about, produced, as has been said, by the efficiency of the new weapons, but rendered possible by those changes in the characteristics of the men of whom armies are composed, which had arisen from altogether different circumstances, such as the high educational standard of the Prussian nation, and the introduction into the ranks of highly cultivated classes. The army, at all events in battle, was and could be no longer a mere mechanical weapon in the hands of its commander. If this latter could not infuse into it a spirit of hearty willing co-operation and intelligent subordination, chaos and chaos only must ensue. For the very essence of the old forms of fighting in battle, as they had been inherited from the time of Frederick the Great, and, though modified by Napoleon, had yet in this respect remained the same, was that battle movements were led up to and prepared for by an elaborate system of drill, so arranged that, by the issue of predetermined words of command, the officer leading at least a division of an army could decide precisely the formation it was to assume and the movements it was to make in battle. Now, though no doubt many of the preliminary movements could still be accomplished in accordance with the old drill, yet, for at least the very mile and a half over which the issue had actually to be fought out, drill had vanished, as far at all events as the infantry were concerned. All effective movements and co-operation depended on perfect organisation, and on a training which made every officer and every man know almost instinctively what to do and what decisions to form as each emergency arose. The Germans had in the largest sense perfected their organisation, not merely

in its form, itself a matter of no small importance, but in its preparedness for battle action. This had been done chiefly by keeping and training together much larger units of command than had ever been organically worked together before. By "organic working" we specifically mean such work as leads each man to know by long habit what the part assigned to him is, and how to contribute his share in bringing about the result desired by his general. With regard to the successive *forms* which army organisation has assumed at different periods of history,[1] representing the condition of an army in a state of rest, it is sufficient to say that the ancient proverb about new wine and old bottles applies perfectly. It would not have been possible for the Germans to have secured a complete correspondence of working, a unity amid great diversity, without having devised a form of organisation which assigned to every man an adequate share of work and of responsibility, by bringing a limited number of men at each step under the authority of one, those so placed in authority being themselves at the next stage, in limited number, also under one man's authority. But the very idea of organisation implies more than this mere perfection of form. It implies also, as animating the whole body, a spirit developed by careful training, a mutual reliance on the certainty of the adherence of all to known principles of action.

Nature of the change.

The essential change, then, which appears to have come over modern war may be stated thus. Under the conditions of the past, the general in command of an army relied upon its perfection in drill and in formal manœuvres for enabling him to direct it with success against the weak points of an adversary. Now he must depend instead upon the perfection of its organisation and of a training adapted

[1] See article "Army" in *Encyclopædia Britannica*, ninth edition.

to make each man ready when required to apply sound principles in every emergency, and, above all, as soon as possible voluntarily to place himself under authority again so as to secure unity of action. To summarise this statement in a single sentence, and employing the word organisation in the larger sense explained above, the change consists in the substitution of organisation for drill as a means of battle-action. In other words, a living organism must take the place of a mechanical instrument.

Inevitable imperfections in execution of present method.

It will be seen at once that the perfection aimed at, involving as it does not merely a mechanical learning, by rote and drill-sergeant, of required changes of position, is of a much higher order both for the individual man and for the whole body than was the case under the old conditions. On the other hand, it is not possible that the practical performance should so nearly approach the ideal as happened formerly. Hence, great as was the excellence of the Prussian army in 1870 as a whole, yet the more thoroughly that campaign is studied the more manifest will be the mistakes in point of details committed by subordinate actors. It is in the nature of things impossible that this should ever be otherwise under the conditions of war which are now established. When the choice of action in detail is left to so many hands the possibilities of error are multiplied indefinitely.

Application of past experience to modern strategy and tactics.

It is clear from what has been said that a change of the most complete character has come over the very principle by which armies are held together. It is by no means surprising, therefore, that a few soldiers should have arrived at the conclusion that, because of the importance of this change, all past experience of fighting has ceased to be of any importance to him who would understand the principles of war as they exist to-day. On the other hand, others of far higher authority have declared it to be certain that change has only affected that branch of the art of war which

is called tactics, and that the other branch, or strategy, is in no way affected. We are not able to subscribe absolutely to either of these statements. But before stating our views it will be convenient to define the terms employed. By strategy we understand "the art of rightly directing the masses of troops towards the object of the campaign." Of modern tactics no better definition perhaps has ever been given than that of Sir Edward Hamley. After defining the limits of either subject thus—"The theatre of war is the province of strategy, the field of battle is the province of tactics," [1] he describes the manœuvres of a modern battle-field as "the quick orderly change of highly trained and flexible masses of men from one kind of formation to another, or their transference from point to point of a battle-field for purposes which become suddenly feasible in the changing course of action."

Distinction between strategy and tactics.

It is necessary, in discussing the application of past experience to modern war, to make intelligible the distinction between these two fields of experience, because undoubtedly the changes wrought by time affect the two great parts of the art of war in very different ways and in a very different degree. There are many parts of the study of tactics which are not strictly included within its province when that is limited to the field of battle. The distinction between the two provinces having been understood as a general idea, it will be seen at once how it has happened that in dealing with the varied incidents of warfare it has become necessary to apply the terms "tactics" and "strategy" to other matters. For no army can determine for itself or know beforehand absolutely what will be a field or a day of battle. Hence it is necessary throughout almost the entire course of a campaign to take those precautions, and to take into account those considerations, which apply

[1] "Operations of War," 4th ed., pt. iii. ch. i.; pt. vi. ch. i.

properly to the period of actual combat. Thus, though an enemy may in fact be many marches distant, it is necessary to provide against his possible attack, by having some troops always on the alert whilst others are marching with all the ease and security which the protection of these procures for them. It is necessary also in a similar manner to have protection for the repose of an army, and to detail troops for this purpose. All the questions, then, which concern the fixing of "advanced guards" and "rear guards," which protect the front and rear of an advancing army, and the "outposts," which protect an army at rest, are usually included in the study of tactics, though in many instances they may have nothing to do with a battle-field. But again, though the campaign,—the large field of war which concerns the marches and movements of armies striving against one another to obtain positions of vantage for the actual combat,—is the province of strategy, yet it may well happen that on the actual battle-field it is necessary to take account, not only of those circumstances which will help to secure victory in the fight, but of the effect which victory or defeat will have upon the campaign. All these considerations we necessarily regard as "strategical," even though they occupy our minds on a battle-field.

The art of war as a study.

It must be emphatically asserted that there does not exist, never has existed, and never, except by pedants, of whom the most careful students of war are more impatient than other soldiers, has there ever been supposed to exist "an art of war" which was something other than the resultant of accumulated military experience. Those who have most assisted in making the study sufficiently methodic to enable it to be of practical profit in their own profession to soldiers for future use, or to historical students in watching the play of mind between great commanders, have been invariably the most emphatic in denouncing all attempts to

formulate a systematic series of "rules of war." Among generals, Mack, the unfortunate Austrian who surrendered at Ulm to Napoleon, and in our own time Count Palikao, who had made himself the laughing-stock of the English staff during the advance on Peking, and was afterwards responsible for bringing about the catastrophe of Sedan, have been the great sticklers for the "rules of war." At least once Count Palikao, in China, came without his sword to look on at the success of operations which he had denounced as "contrary to every maxim of war." On the other hand, Sir Edward Hamley, who has done more than any other Englishman to make known to English officers the value of a methodical treatment of the study of campaigns, has most vigorously denounced such talk as this.

"Nothing is more common," he writes, "than to find in writings on military matters reference to the 'rules of war,' and assertions such as that some general 'violated every principle of war,' or that some other general owed his success to 'knowing when to dispense with the rules of war.' It would be difficult to say what these rules are, or in what code they are embodied; and an inquirer, who is somewhat puzzled, perhaps, to understand how the highest proficiency can be displayed in a science by defiance of its principles, had better resolve to base his own conclusions upon fact and reason alone, when he will probably discover that such criticisms have only very vague ideas for their foundation."

View of great writers.

Jomini, a very eminent authority in his day, though not a little disposed to somewhat exact definition, and perhaps sometimes to over-pedantic statement, has with very little difference expressed the same view. Clausewitz, probably the most profound of all military students, has even more emphatically declared that the theory of the art of war is valuable, just in so far as it assists to guide a man

through the vast labyrinth of military experience, and to prepare his mind to be ready to act for itself under the emergencies of actual war; but, he adds, "it must renounce all pretension to accompany him on to the field of battle." Both he and Jomini agree in asserting, that it must have become with him an instinct, almost absorbed into his blood, to be of any value to him. "The wise teacher," says Clausewitz, "restricts himself to the work of directing and assisting the mental development of his pupil, and does not try to keep him in leading-strings throughout his career." Thus from all countries those who have come to be accepted as authorities on the study of war, the very men who, if any, ought to be tempted to magnify their office, have cried aloud against the abuse of such study. It is not from them, but from non-military writers like Macaulay, that the notion of some formal code of the rules of war has been derived. Macaulay's expression about Peterborough winning battles by violating the rules of war cannot be characterised otherwise than as worthless rhetoric, not only unsupported, but absolutely contradicted by fact. So thoroughly reasoned and so entirely worked out on a principle were Peterborough's campaigns, that they have in our own day served to guide one of the most brilliant of English soldiers in the conduct of one of his most successful wars. The campaigns by which Colonel Gordon saved China were largely assisted in their conception by his careful study of Peterborough's generalship in Spain.

View of great soldiers.

On the other hand, it is not from writers on war, but from the greatest generals, that the most emphatic statements have come as to the paramount importance to a soldier of the careful study of past campaigns. The classical instance of the most authoritative dictum on this subject is surrounded by circumstances of dramatic interest.

Napoleon in 1813, sitting after dinner surrounded by his marshals, between the first and the second battle of Dresden, was drawn to speak on this subject by Marmont, the one who, in Napoleon's own judgment and that of others, had himself the most complete knowledge of war as an art. Marmont, observing how difficult it was, during the continued strain of war itself, to improve in its practice, maintaining that rather in peace than in war could war be best studied, said to Napoleon that he thought that Napoleon's own first campaign in Italy was the most brilliant in its conception of any that he had ever fought; so that sixteen years of high command had hardly made his knowledge of war as an art more perfect. Napoleon at once admitted the truth of this, and in reply said, "Yes; Turenne was the only one of us all who constantly improved in the management of his campaigns as he advanced in years." This reply is especially remarkable, because Napoleon was not only the greatest captain of his own age, but he was by far the most careful student that the world has known of the great generals of all ages. It is an unanswerable assertion that only by study of the past experience of war has any great soldier ever prepared himself for commanding armies.

Period of past war suited for study.

It must, however, be always a question how far the circumstances of our own time have so changed as to limit the period within which it is worth while to devote very careful study to the wars of the past. On the one hand, the greater number of officers will never find time to study all the great campaigns which would be worth the trouble, and it is therefore of special importance that the most modern experiences at least should be completely known to them. On the other hand, it can hardly be claimed for the campaigns which have taken place since breech-loaders and rifle-guns have become the determining factors

of battles, that they present a picture approximately complete of all the possibilities of modern war. To any one who tells us that nothing applicable to the wars of the future is now to be learnt from the campaigns of Napoleon, or even from the events of the Peninsular War, we are prepared to reply by adducing, either from almost any one of Napoleon's most important campaigns or from the Peninsula, specific lessons, for the most part experiences of human nature, and illustrations of the mistakes which men are liable to make, which have in no wise been diminished in value by the changes which have come over the face of war.

Campaign of Fredericksburg as illustration.

As an instance in point, reference may here be made to a recently published study of the campaign of Fredericksburg during the civil war in America. It deals in a sound and useful manner with both strategy and tactics, and yet it is based entirely on conclusions drawn from a period of war prior to the introduction of the breech-loader. We are disposed to put it forward as a very powerful illustration of the kind of lessons which a careful student may draw from one condition of tactics and apply to another. What is most interesting in the work is perhaps the way in which those lessons are made to apply with exceptional force to the peculiar and special conditions involved in breech-loader fighting. It seems impossible for any one who has realised its excellence not to perceive that in a similar manner, with the like wise appreciation of those things which are permanent and those things which change, sound deductions may be drawn from even the tactical experiences of the Napoleonic era. Nay, the statement of the most brilliant and successful general in the British army of to-day appears to be indisputable, that a perusal of the words of even Cæsar himself will suggest to any thoughtful soldier, who knows something also of modern war, reflections that

he may afterwards recall with advantage as applicable to modern campaigns.

Has, then, change occurred in tactics only, or in strategy also?

That tactics have been first and most directly affected by the changes which have recently taken place in the conditions of modern war it is impossible to doubt. The nature of tactics has been always of a kind more tending to admit of rapid change, and more frequently suggesting to a commander of originality new developments. Napoleon, indeed, declared that tactics should be changed every ten years. Strategy has always, on the other hand, been assumed to possess a more permanent character. All important changes in armament immediately affect tactics. No one now disputes the general character of the tactical changes which have been produced by the introduction of the breech-loader and the development of artillery. Indeed, when we come to describe the broad features of modern tactics, we shall be dealing with matters as to which, except as to a few specific points, it may be said that practically the military world of Europe is agreed; but we confess that we are not prepared to accept the assumption that tactics only have been changed, and that he who would be ready for future war on the grand scale must not also look for some change in the general character of strategy.

Former changes in method of strategy.

Sir E. Hamley, in his "Operations of War," has graphically described how armies lived in the days of Edward III.; how they depended upon the food which they found in the country through which they moved; and how, when they had exhausted that country, and were opposed by an enemy holding a strong position, which they could not venture to assail, they were obliged to fall back because they had no arrangements for obtaining supplies regularly from their own land. Now the great strategic movements of armies have depended always upon their means of obtaining food and warlike supplies. It will therefore be evident at once

that the character of strategy necessarily changed from the moment when a system was devised by which, along a regular chain of posts, or "line of communications," an army received its supplies of food, warlike implements, and reinforcements, from either its own country or some other source, which came to be known as its "base of supply." It began to be the object of generals to manœuvre in such a way as to interfere with the lines by which their opponents were receiving their supplies, and to protect their own. In many respects, no doubt, even the Roman armies in the time of Hannibal acted on strategical principles that are applicable in our own time. Yet the change in the conditions under which armies began to live in the field was so great from the moment when, in order to facilitate and hasten their movements, they began to be thus supplied from a particular "base," and along these "lines of communication," that the art of handling them in campaigns changed almost as completely as tactics ever changed. New combinations became possible. Skill was turned into a new direction. The historical deduction is that strategy, like tactics, changes when its implements or weapons change. If now it be asked whether, since the days of Napoleon and Wellington the implements of strategy have changed as completely as those of tactics, it must be answered that the change has been even more complete.

Changes since 1815 in the general conditions of war.

Since 1815 the face of Europe has been more altered than it had been in five previous centuries. It is now covered with a network of railways and telegraphs. The commerce of the world and its means of inter-communication have developed in a manner that has everywhere revolutionised the conditions of life. The advance of science has operated in a thousand forms upon the circumstances under which armies exist in the field. The conditions of sea transport and of sea warfare are even more

completely changed than those of land. Further, it must be remembered that battle-action is itself one of the determining factors of strategy. If, in their general character, the nature of battles and the circumstances under which battles have to be fought change very materially, that in itself involves a further change in the combinations which are open for manœuvres in the field of which the ultimate object is to lead up to battle. Once more, the size of the armies which will enter into the next great campaign in Europe will be so vastly different from those which fought out the great wars of the past that their manœuvring in campaigns must necessarily be very different from anything that Napoleon undertook. Now, even during the later wars of Napoleon, Jomini was obliged to admit that many of the experiences of the past must be materially modified as armies increased in size. One of the most familiar forms in which Napoleon exercised his strategic skill lay in defeating with his own entire army a fraction of the forces opposed to him, before it could be reinforced by the remainder of the enemy. Thus the element of time essentially entered into the question. Even during the great campaign of 1813, when Napoleon, holding a central position on the Elbe, endeavoured to strike from thence against the masses of the allies formed in a great circle round him at Berlin, in Silesia, and in Bohemia, experience showed that it was by no means easy to crush with sufficient rapidity armies of 120,000 men so as to prevent them from being supported in time by others. As the allies gradually closed in on him, and the distances between their different forces diminished, this became continually more and more apparent. In fact, it became clear, if it had been doubtful beforehand, that the question was altogether a matter of proportion between time, distance, and the resisting power of the several armies concerned. On the other hand, in

1814, when the nature of the country invaded caused a reduction in the size of the armies moving forward separately, Napoleon was able as of old to strike his blows right and left with telling effect.

Increased power of modern armies as affecting strategy.

Now, if it were possible for an army of our day, supplied with all the implements with which modern science has provided it, to meet any army of equal numbers equipped as Napoleon's armies were equipped, the difference in power of the modern army would be such that it would almost be able to deal with its enemy as civilised armies provided with firearms were at first able to deal with savages possessed only of bows and arrows. The artillery of the days of Napoleon would not be able to act at all, for our modern infantry can fire with effect at a distance greater than could Napoleon's big guns. Our artillery would be able to destroy Napoleon's army before either his artillery or infantry could act against us. Thus an army of 50,000 men of our own time must be reckoned as possessing, at least, the resisting power of 100,000 of the days of Napoleon. It is obvious, therefore, that the relationship between time, distance, and the resisting power of armies has been greatly affected by the change in the character of weapons, and that calculations as to what a superior army can do in a given time to break up the force of an army opposing it, and to be free to deal with another army, are greatly modified.

Increased expenditure of ammunition affecting combinations.

There is another element which has largely to be taken into account in our modern battles. The expenditure of ammunition is, from the rapidity of fire, enormous. Even in the days of Napoleon it was extremely difficult, as his own words after the battle of Ligny show, for a victorious army rapidly to turn upon a second force which had not been engaged, because of the time required for filling up the empty ammunition waggons and the men's cartouches.

These difficulties under our conditions of warfare are immeasurably increased.

Effects of other modern conditions on strategy.

Again, in order that an army may nowadays be isolated in the way in which Napoleon in 1805 cut off the army of Mack in Ulm and utterly destroyed it, many conditions have to be secured which were not needed then. The telegraph is a formidable enemy to such an operation. The newspapers are a still greater. When MacMahon in 1870 attempted his disastrous march to the relief of Bazaine in Metz, to the success of which secrecy was essential, his movements first became known to the Prussian headquarters through French and English journals. Thus the rapid intercommunication between town and town, capital and capital, which is now extended in all directions over Europe to an extent that makes it extremely difficult to completely prevent news of all kinds from leaking out, is an element that cannot be neglected in any strategical calculations. The change in this respect is strikingly shown by the fact, that *seven weeks* elapsed before the news of Trafalgar reached Naples. Furthermore, distant parts of an army may, under certain conditions, be in point of time much more closely connected than they formerly were because of the facilities afforded by railways and telegraphs. There are a variety of other elements less important separately than as all contributing to the same result, which must not be ignored,—the facilities afforded for the supply of armies by compressed food and compressed forage, the enormously extended area which caters for the feeding of the European populations and the organisation of the commerce of the world, rendering all which that area yields rapidly available, and, lastly, the continually improving methods of machine transport by road, bicycles, tricycles, &c., making it possible to effect rapid movements without forage at all.

Changed spirit of armies affecting strategy.

Furthermore, not only have we to deal with new material conditions, but, as already observed, the armies which have to be led under these new circumstances have themselves been profoundly changed, not only in their armament, but in the very spirit, discipline, and organisation by which they are held together. What is true of the private, of the sergeant, of the captain, in his relations with superiors, is even truer of the leader of the brigade, of the division, of the army-corps, of the co-operating army. The whole method of the Prussian discipline and organisation, as it showed itself in 1870, implied an intelligent independence of action in all ranks that most seriously affected the strategical operations. In fact, in that campaign two very noteworthy points may be observed. From the first battle at Weissenburg up to and including Gravelotte, the peculiar feature of the war was that the German successes at each action—Weissenburg, Wörth, Spicheren, Colombey-Nouilly, Mars-la-Tour—were much more important in their strategical than in their tactical aspect—much more important, that is to say, in their general influence on the campaign than in the severity of the losses in men and material inflicted on the enemy. The losses in battle were in fact greater on the side of the victors than on that of the vanquished. Yet, secondly, each of these actions, up to but not including Gravelotte, with a partial exception in the case of Weissenburg, was brought on by the determination of subordinate leaders, and was not designed beforehand either by the King's headquarters or by the headquarters of any one of the three armies. It cannot of course be denied that there was an element of danger in this way of managing a campaign. But the general who attempts to carry out a modern campaign without having realised the nature of this strictly strategical experience is reckoning without his host. Armies now occupy, even when in numbers similar to those

of the past, distances vastly greater than was the case in former times. One of two things must happen: either a general must attempt to prescribe the action of his subordinate leaders with a rigidity which nowadays will continually prevent them from carrying out what would be his wishes could he be on the spot to advise them; or he will find that he has, as best he may, to make his strategical movements fit into events which have not been previously designed by himself. The Prussian headquarters, realising fully the dangers involved in the plan which they, in fact yielding to necessity, accepted, found no fault with the generals who had initiated battles which had proved successful, fearing to do more injury to the spirit of the army than would be compensated by any other advantage. Nevertheless the notes of warning thrown out in the official history of the war are clear and unmistakable. To us it appears that this condition of things is an element in modern war to be foreseen and prepared for, that it represents, not an accident of the 1870 campaign, but an almost inevitable consequence of the present condition of armies. It was their high spirit, their high training, their knowledge of war, which made the German leaders so hard to keep within the leash when they saw the prey before them, and realised that it was a matter of moments whether it could be seized or not. There is nothing like this campaign, in the peculiar mode in which its strategical aspects developed, in all the past history of war.

General deduction as to the relation between past experience and present facts.

It would appear, therefore, that it tends to mislead a man who is anxious to consider what combinations are open to a general in the field in our day, to assure him that strategy has undergone no change since the days of Napoleon. No doubt a soldier who had never considered how or why Napoleon triumphed over his opponents, and when and why he failed, would have very little chance of solving aright the

problems of a modern campaign. The handling of armies is, before all things, in the infinite variety of its elements, a dealing with human nature, under certain peculiar conditions, a play of mind against mind, and only by a study of the masters of the game can some of its experiences be gathered. If the changed conditions under which a modern war now takes place have been realised, then all study of the martial experiences of the past will in its own degree have value. We doubt extremely if any man can fairly appreciate the character of the campaign of 1866 or the campaign of 1870 who knows nothing of the campaigns of Napoleon. To take, for instance, the earlier of the two, the Prussian strategy in it has been the subject of much dispute; and those who think that questions of war can be settled by quoting maxims of Napoleon's, or of some other generals, find no difficulty in picking out sayings of his that would condemn without excuse the scheme of the Prussian campaign. Certainly we should ourselves be sorry to suggest that it is the one satisfactory model for future guidance under analogous circumstances. To us it seems that its value, as a sample of what may be done in war, depends on a careful comparison of the handling of the Prussian armies, under the conditions in which they had to act, with the mode in which Napoleon and other great generals acted under their own conditions. The point in which the Prussians offended against the received maxims of Napoleon lay in their attempting to pass the Bohemian mountains in two separate armies,—one from Silesia, one from Saxony and Prussia. The Prussian headquarters remained at Berlin in telegraphic connection with both armies up to the moment when the junction of the two had been so far effected that they were able to communicate with each other. Now Napoleon in many letters, more especially those addressed to his brother Joseph in Spain,

has condemned the attempt to arrange complicated schemes for the co-operation of armies acting from different bases of supply. His reason is that such complicated schemes are rarely worked out as they are intended to be. For our own part, we do not believe that the warning from the vast experience on which Napoleon's views were based has ceased to be of practical importance. We think that it ought to be present to the minds of all who are working out the plan of a campaign, and that the simpler, the less complicated, the less dependent on the successful combination of a number of different elements the plan is, the more likely is it to be successful. But we think also that the actual circumstances of each case as a whole must be taken into account, and that in the instance of the campaign under consideration, the Prussian headquarters were fully justified in the method they adopted. Such an operation indeed would not have been safe or wise in the days of Napoleon. We shall touch on this matter again, but for the moment our contention is, that the modifications of the art of war which are necessitated by modern conditions extend to all its branches, and that criticism of modern campaigns which is based upon maxims derived from the past, without taking account of those new circumstances, is unsound and untrue. Few things are more unsafe in war than to judge, by isolated cases of success alone, as to the soundness of the principles and the capacity of the leaders concerned in bringing about the successful result. The importance of military success is, in Britain more especially, apt to be measured much more by the national interest and national excitement which the result occasions, than by any careful estimate of the difficulties actually overcome, and the capacity for future command exhibited by the triumphant leader. To take illustrations sufficiently distant from our own days:—scarcely any victory, naval or military, has ever excited

Importance to statesmen of not merely gauging military ability by chance success.

wilder enthusiasm in England than the capture of Porto Bello by Vernon in 1725; scarcely any disaster, the most disgraceful that ever occurred, caused greater horror and alarm in England than the return of Moore's expedition from Coruna in January 1809. Yet, as subsequent events showed, Vernon was by no means a very able admiral; and, on the other hand, as all who have really studied the Coruna campaign well know, few have been ever conducted with more conspicuous ability or would have justified a higher confidence in the general. It is thus of the greatest importance that statesmen at least should not be carried away by the sort of hasty criticism which deals in glib phrases and avoids reasoned examination of facts. The maxims of Napoleon may be as easily kiln-dried and deprived of life as those of Frederick had been by the Prussian army of Jena, which was so sure of defeating the upstart aspirant to military supremacy.

Conclusion as to war as an art.

To sum up, then, what has been said on the art of war. There is no royal road to the knowledge of the art of handling armies, any more than to any other branch of human activity. All that the best summary on that subject can profess to do for a reader is to assist him in undertaking a methodic study for himself of the principles which have guided great commanders, of the experiences of those who have fought in great battles and great campaigns, in endeavouring to put himself in their place, so as to see with their eyes, hear with their ears, and realise the passions which influenced them, and the circumstances under which their decisions had to be formed.

Conditions of historical study.

It is not to be forgotten that even a commonplace critic may find it easy, when all the facts are fairly laid before him, to judge what ought to have been done in a given emergency. "La critique est facile, l'art est difficile," was the motto which Muffling, the very able representative of

the Prussian army at Wellington's headquarters in 1815, chose for the title-page of his studies of war. The historical student has at least one advantage which is always and absolutely denied to the general. He may never, for many reasons, have an altogether correct and a completely true picture of all the circumstances which occurred on a given day, but he has a far more complete one than could possibly be before the general at the moment when he formed his decisions. Still more, he has far better materials for judgment than any one of the minor actors who had themselves to decide what they ought to do, within the limitations of the orders they received, on most incomplete knowledge of what others were doing at distant parts of the field, of the positions and designs of the enemy, and of many other facts which may now be known with certainty by any one who will read what happened. He who would prepare himself in any measure for criticising aright must put himself in the place of the soldier who has to choose,—must realise the conditions of personal danger, of noise, of passion, of incomplete and constantly misleading information, of disorder, confusion, panic, excitement, under which decisions are to be formed that must be calm and cool though they involve the lives of thousands of men, the fate of nations, and the course of history, and yet must be given then and there, for the lost moment will not return. Then he will perhaps perceive that after all the question whether he would himself have given the right decision, no matter what his previous training may have been, will be more a question of character than of knowledge. Nevertheless he is much more likely to decide aright if he has in his mind some large knowledge of the accumulated experience of the past, than if, without anything to guide him, he judges by a so-called "common sense" which has already led him to ignore the earnest advice of those who have

been themselves most successful in war. He is still more likely to decide aright if, after he has acquired some general knowledge of the experience of the past, his judgment has been exercised by considering under assigned conditions what course he would actually choose to adopt. This is the method of peace preparation for war in which the Prussian officers of our day have been most carefully trained. In all their current works on the study of war they insist on the importance of this formation of the judgment and this training of choice as a matter of the utmost importance. All their most important military educational works take the form of "studies" or problems. The use of the war-game and the training given by peace-manœuvres, as well as all regimental instruction, are adapted to the same end.*

Strategy.

The character of all military operations, whether those of strategy or tactics, is mainly determined by the nature of the armies engaged in them. An army as it exists in the field owes its constitution largely to those military institutions which have been fully described for each of the armies of our time under Army. But an army in the field differs considerably in each case from that which has been described as "the machine in a state of rest." This will be obvious at once if we consider the first question which attracts the attention of a commander about to lead an army in war. He has to choose the line of operations along which his army will act. The considerations which determine his choice are mainly connected with the neces-

* We are indebted to the Volunteer Tactical Society of Manchester for by far the best essay we have seen in any language on the history and use of the war-game—that by Captain Spenser Wilkinson—and for the beginning of a series of translations of exercises in strategy and tactics by some of the ablest German soldiers of the day.

sity he is under of providing at all times for the supply of his army with food, forage, and ammunition, whilst he directs it against the point at which he is to strike.

Supplies.

In order that, for actual fighting purposes and during war, "that vast and complicated machine," an army, may so act "that the whole aggregate force of its numerous parts may be exerted in any direction and on any point required," provision must be so made for the needs of the individual soldier that the working of the machine is not hampered. A body of even thirty thousand men occupies a very considerable space, and requires an amount of food that completely disturbs the ordinary peace arrangements of most places at which it arrives in the course of its movements. Hence, apart from the large means of transport, such as a great fleet or ample railway communication, which may be sometimes used to carry a whole army to a given destination, an army requires what is known as "transport" for an altogether different purpose. The food and ammunition must be distributed to the several battalions of soldiers composing the army from the points at which it has been collected, and within the battalions it will often be necessary to distribute it by transport to the men.

Transport.

Similarly for the conveyance of the sick and wounded of an army transport is required. In former days the arrangements which were made to provide an army with what was needed in this way were clumsy in the extreme. It will be remembered that during the Peninsular War the Duke of Wellington was necessarily so much occupied with this question of food and supply that he used humorously to say that he did not not know that he was much of a general, but he prided himself upon being a first-rate commissariat officer. As long as all armies depended upon the services of country carts and undisciplined drivers, it was always possible to carry on war by these means. An army which, like the

British in the Peninsula, fought continuously in the same country for six years, gained an enormous advantage by the gradual training and discipline of its transport drivers and commissariat employés. But now that the great nations of the Continent of Europe have adopted a system by which all the population is available for military service, the result is that, from the moment of declaration of war, a modern Continental army enters upon a campaign with the whole of its "transport," using the term in the sense we have employed, forming a definite part of the disciplined army. It is scarcely possible to exaggerate the importance of this change in facilitating the operations of an army in the field. The British army stands at a very great disadvantage in this respect, from the fact that the population outside the fighting ranks is not, like that of Germany or France, ready to take its place in the departments which cater for supply and transport. This modern perfecting of the efficiency of the interior transport of an army is a new strategical weapon in the hands of a general, to be reckoned among those spoken of in the earlier part of this article. No army which does not possess such organised transport can enter the field against another which is provided with such an implement as this without serious danger. In fact, this transport must be understood to be as much a part of a modern army as any of its "arms," infantry, cavalry, or artillery. When, during a campaign, an infantry battalion is moved by train, it, unless for a very especial emergency, requires to have with it the waggons and carts which form what is called its "regimental transport." Other transport is required to carry the more general stores needed for a brigade, a division, or an army-corps. Thus each unit of an army, if it is to remain in a condition of fighting efficiency, requires to have with it a great number of horses and carts.

Effect of complex composition of armies on movement.

It is impossible to realise the nature of the problems involved in the movements of armies unless this condition is kept in mind. For instance, when the British were moving to Ismailia in 1882, it was no uncommon assumption of the critics who at home watched the operations as they went on, that within a day or two at the outside, the small force, not exceeding about 10,000 men, which at first moved thither from Alexandria, had effected its landing. Had it been a body of 10,000 travellers landing from a variety of ships, to be provided for by the civil arrangements of the country after they had landed, that might not have been an exaggerated estimate of what was possible. But in fact the great ships were carrying not only 10,000 travellers,* but great quantities of stores of all kinds, of ammunition, of railway rolling-stock, of engineer equipment, of waggons and of horses. The landing of these and their passage up a narrow causeway was necessarily a very elaborate and slow operation. The whole scheme of the campaign had to be based on knowledge of the time which such work would require, and, in fact, as a consequence of it, more than half the force to be ultimately employed was left either at Alexandria or at sea, and only arrived at Ismailia many days afterwards, when the landing of the first part had advanced considerably.

By sea.

By railway.

The same difficulty in rapidly transferring an army, chiefly because of its attendant departments, affects all strategical movements by railway. The embarking of troops on a railway, and their disembarking from the carriages, is an operation of such slowness that for comparatively short journeys it is actually quicker for troops to march than to move by railway. The miscalculations and mistakes, which were made so recently as 1870 by the

* The entire army employed in Egypt was about 30,000 strong. The reference in the text is to the force which first landed at Ismailia.

French army, from failure to understand these facts, led often to the most disastrous consequences. In one instance, Gambetta, insisting on sending troops by railway which Aurelle de Palladines had wished to march, hampered the operations of that veteran by the delay which was thus imposed upon certain portions of the army. There is, in fact, between the distance to be moved over and the number of troops to be moved by a line of railway a proportion which determines whether it is a more rapid operation to march or to travel by railway. In a pamphlet published shortly after the war, the French Emperor attributed his disasters to the general ignorance of his army as to the conditions involved in railway transport.

Continuity of supplies.

An army in the field, however, in addition to having transport present with it for distribution, needs to be able to replenish its supplies; and, though in fertile countries like France the feeding of the army may be greatly assisted by requisitions or by opening markets, it is impossible to depend for existence on these alone. Fresh supplies of ammunition at least must be continually received from a secure source, and the means must be available for feeding the army in case the resources of the country fail. Nowadays, and in most countries, the main line of supply is carried along lines of railway; but, as these are always liable to be destroyed by a retreating enemy, transport, independent of that which is required merely for distribution, must be provided in the form of waggons, carts, or pack animals sufficient to supply, for at least some days, the entire army.

Weakness of line of communication.

The source from which an army is supplied is usually spoken of as its "base" or its "base of supply." The direction in which, looking forward, a general proposes to advance, and along which it will be necessary to arrange for supply, is spoken of as his "line of operations." The direction along

which the army, having already advanced to some distance from its base, is supplied, is spoken of as its "line of communications." Now, as the line of communications may come to be of great length as an army advances, and as the army needs to have its fighting strength available in the front when it is engaged with the enemy, it is clear that the long lines of road or railway along which the food and ammunition is moving forward, while parties of sick and wounded men are going backward, become weak points in its condition, which must be jealously guarded, but are difficult adequately to protect throughout their length, without detracting too much from the force in the front.

The two points at which blows are aimed.

In modern war the effort of the general is directed to maintaining in its full efficiency "the vast and complicated machine" which he handles, and to breaking up and destroying the efficiency of that to which he is opposed. This is the central fact to be kept in mind. Generals and soldiers, long accustomed to look at war from this point of view, frequently embody their whole conception of strategy in a phrase which to a reader, taking it in its simple form, is apt to seem like a mere truism—that the great principle of strategy is to concentrate the largest possible force at the right moment at the decisive point. So stated, strategy may seem to have nothing exceptional in its nature, and to involve no study of the nature of the great organisations of men with which it is concerned. But, in fact, this study and this knowledge are presupposed by those who thus explain their art. It is because armies are not mere gatherings of armed men, but have a vitality of their own, that some very heavy blows may be struck against them without affecting a vital point, whilst a more skilfully directed stroke may destroy their whole future power of action. An army then, as it stands in the field, is of this character, that while the fighting force directly opposed to

in which the leader of such a raid finds himself, he is like a man entering a dark room full of assailants, never knowing when or whence a blow may be struck against him.

But exposed to attack if hostile army threatens them, whilst protecting its own lines.

The situation is altogether changed if, instead of the two armies fronting one another directly, one of the two is able to make its movements in such a way that, while it securely covers its own line of communications, its direct march forward threatens to strike the line of communications of the enemy. Then the light troops can at once strike the most exposed parts in all security. Under those circumstances, the army whose communications are threatened is obliged immediately, for fear of losing its means of existence, to turn to face its opponents. The advantage so gained by the army which has obliged its enemy to conform to its movements is very great; for the choice of position can no longer be made by the assailed army solely with the view to gaining success in battle. It may be obliged to fight in a position tactically disadvantageous, and if it is defeated, the defeat is almost certain to be fatal, for it will be driven away from the means of replenishing supplies. On the other hand, the army to which it is opposed, if obliged by ill-success in action to retreat, falls securely back upon fresh supplies, and suffers only in proportion to the extent of its actual defeat on the battle-field.

Aims of strategy.

Thus the aims of strategy directed against the actual condition of the armies of our time are twofold—first, to break up the organic force of the opposing army by dealing in concentrated force with fractions of the enemy, and secondly, to threaten, and if possible to destroy, the enemy's connection with the sources from which he draws his supplies. Failing either of these opportunities, a superior army may nevertheless endeavour to force on a decisive action in order to make its superiority tell. In other

words, in that case the aim of strategy becomes that of securing a decided tactical advantage.

Constant opportunities presented by war for such strategic attempts.

It might be supposed, since these facts are known to all men who are at all likely to be placed in the command of armies in the field, that opportunities would rarely occur for delivering blows of the kind described. In fact, the difficulties in the arrangements for the movement of armies are so great, and the difficulties in obtaining information of what is going on in a theatre of war are so serious, that such chances are presented in almost every campaign. Thus in the 1870 campaign the Germans, after first breaking up comparatively small fractions of the French army at Weissenburg, Wörth, and Spicheren, succeeded in separating one great mass of the French army under Bazaine from the other under MacMahon, and in separately crushing both. In the 1877–78 campaign the Russian army in Asia Minor advanced westwards past Kars against Erzeroum, driving Mouktar Pasha back before it; but the arrival of a fresh hostile force from the neighbourhood of Van in the south, which, marching northwards upon Bayazid, struck directly upon the line of communications of the Russian army, produced an immediate collapse of the whole movement. The Russian army was obliged to fall back at once. Similarly, in Europe the Russian forces advancing from Tirnova had pushed their advance across the Balkans towards Adrianople, when the arrival of Osman Pasha's army, moving from Widdin upon Plevna at right angles to their line of communications, caused the whole movement to collapse, and obliged the Russians to turn their attention to the force which thus threatened them.

Relations of strategy and tactics illustrated.

This movement of Osman Pasha's illustrates very happily several points in the relation between strategy and tactics. In the first place, Osman's move was obviously in its general character, in what we call its strategical aspect, an offensive

one directed against the most vital point of the Russian field of campaign, the bridge by which they had passed the Danube at Sistova. The threatening character of the position he took up obliged the Russians in some way to dispose of his force. Very unwisely, they engaged in a series of ill-prepared and ill-directed attacks upon him. The result was so completely to shatter their forces that, had Osman advanced, after his final success, against Sistova, the small Russian remnant between him and the Danube must have been driven into the river, and in all probability all the Russian forces which had crossed it would have been destroyed. But, as he remained obstinately within his field fortress at Plevna, the Russians in their turn gradually succeeded in cutting off his communications, and in obliging him to surrender that which they could not take. Thus it is clear how a site for an army may be so chosen as, from its strategical character, to induce, if not to compel, an enemy to attack it. It is also clear that an army fighting in a well-chosen and well-fortified position, acting on the defensive, may inflict serious defeat upon forces superior to it in numbers. Finally, it is clear that such an army will, in the long-run, lose all the advantages of its success if it is not able to advance and to act offensively when the opportunity is presented to it. It has been convenient to illustrate these points from the most recent campaign in Europe, but they had been already deduced and were fully understood long before that campaign had been entered on. They illustrate the way in which the experience of the past indicates what will happen in future war. The arrival of Osman Pasha at Plevna was a complete surprise to the Russians. Its disastrous effect for them was largely due to this cause. Apparently the same thing is true of the arrival of the Van forces at Bayazid. Yet, at the time, the existence of the Turkish forces both at Van and Plevna

was known in London. The want of information at the Russian headquarters appears therefore to suggest the most extraordinary negligence on the part of the Russian staff. In any case, the vital effect upon a campaign of being able to procure the best information in any way obtainable can hardly be exaggerated. Cavalry being the arm employed to spread round an army in all directions, to gain information and to conceal the movements of the army, is on this account often justly called the strategical arm.

Surprise an essential element of success.

In whatever way strategy is employed surprise and concealment are essential to success. On this account it will continually happen, in selecting a line of operations or a scheme of campaign, that the most important point of all is to carry out just what an enemy does not expect. Very often successful campaigns, the method of which has been subsequently much criticised, have owed their success to the fact that, from a nice calculation of time and distance, the successful general has seen that he could carry through an operation dangerous in itself, but sure not to be the one expected by his opponent. For the same reason, in all the brilliant and successful efforts of strategic skill, steps have been taken beforehand to carry out the preliminary movements of an army in such a way as to leave an enemy up to the last moment uncertain in what direction the blow would be struck. Usually also some special effort has been made to induce the enemy to believe that he would be attacked in a different direction from that intended. One of the means by which this has been most successfully accomplished is the selection of the point of concentration prior to the opening of a campaign.

Necessity for concentration at opening of campaign.

The motives and causes for this "concentration" require, however, some explanation. It is much more easy to feed and supply an army which is distributed over a considerable area than one which is closely concentrated for the purposes

of action. Furthermore, armies when moving along roads occupy a very great length. The head of the column is more or less distant from the rear in proportion to the number of troops, waggons, and animals that march by the same road. Hence it follows that the more roads an army can employ in its march the more easy will it be for its several parts to reach a required point at the same moment. Therefore, for facility of supply and for facility of movement, as long as an army is out of reach of an enemy, a considerable dispersion is advisable. But it is vitally necessary to an army entering on a campaign to be able to get all its parts together before there is any possibility of an enemy's attacking it. Otherwise it would be in the position of exposing some of its fragments to the danger of being separately attacked by superior forces of the enemy, and having their efficiency destroyed before they could be supported. Hence a concentration out of reach of an enemy's concentrated army is the preliminary necessity of every campaign.

The effect of the selection of a point of concentration, as tending to leave an enemy uncertain as to the direction which a general purposes afterwards to take, can hardly be better illustrated than by Napoleon's concentration in the Waterloo campaign. By gathering his army at Philippeville, Beaumont, and Solre, he threatened Mons as directly as he threatened Charleroi, and thereby tended to prevent his enemies from concentrating against his intended attack.

Conditions which enable a small force to detain a larger.

Though it is nearly always to the advantage of a body of troops which comes in contact with a hostile force inferior to it in fighting power to fight with it and destroy its organic unity, yet a small force may for a time succeed in delaying the movements of one very superior to it. The fighting power of an army depends upon the number of weapons that it is able to bring to bear upon its enemy.

Now, as, for rapid movement that does not fatigue the men, an army is ordinarily obliged to march along roads, it follows that the number of weapons available for fighting in the front of the line of march is very small. Hence, though a general may have under his command a very large body of troops, representing a very great amount of power when that power is developed, yet as long as he is simply marching forward he cannot immediately use that power at the point which the head of his column has reached. In order to do so he must bring those men who are far away from the front up to a position in which they can use their arms. Such an operation often takes a very long time. The time becomes much longer if, instead of marching on a road through open country or between hedge-rows, he has great mountain precipices on either side of him, so that he cannot easily get his men out of the path in which they are. Or again, if he finds that it is necessary for him to develop the power of his army in order to force his way across a bridge over a river, it may be necessary for him in the first instance to extend his artillery and infantry along the side of the stream nearest him in order to use his weapons; and then, when he wants to resume his march, he may have to bring them back again to the bridge. These are instances of the delay which is imposed upon armies which have to force their way through "defiles."

How advantage is taken of these for the purpose.

Now, if a small force is employed in delaying a larger one, which it does not intend seriously to engage, its object almost always is to induce the larger one thus to "deploy" its force from the march to a position for fighting, purposing itself to escape before the enemy seriously attacks it. It may seem at first that, as the small force has itself necessarily to pass from the march formation to the fighting position and to return again to the march, there is no gain of time. But, in fact, if the successive positions be

judiciously chosen for the small force, it is extremely difficult for the general commanding the superior army to know what number of enemies he has before him. If, not wishing to delay the movement of his army, he deploys too small a force, the defender may use his whole power to inflict a crushing defeat upon this before it can be supported. If, on the other hand, he deploys a force sufficient to destroy the body opposed to him, this must involve a long delay, and very probably he will find, when he moves to attack, that the defensive force is already gone, or has left only some light troops to make a show up to the last. By such means again and again in war a small force employed in well-chosen ground has been able to hamper the movements of a superior body and to gain time for other operations. The different applications of this detaining power of small bodies are so numerous that hardly any problems either of strategy or tactics are intelligible unless its nature is understood. The essence of it lies in the smaller body not allowing itself to become so engaged as to have its organic unity destroyed by defeat.

Use of detaining power.

"Interior lines."

The simplest application of this detaining power of small bodies occurs in this way. Suppose, as often happens, that two allied armies, or two parts of the same army, are moving to unite against an enemy. It may happen that by skilful dispositions or the chance of war the general engaged against them is able to interpose between them whilst they are still several marches apart from one another. Suppose now that in a country favourable to such an operation he employs a small portion of his own force to delay the march of one of his opponents, whilst he throws the bulk of his forces against the other. In attempting to defeat this body before it can receive support he holds a position of very great advantage. This is the situation which is commonly described by saying that the general in

question is acting on "interior lines" against the two armies opposed to him. But it is vitally important to his success in this matter that he shall succeed in defeating one of his opponents whilst the other is still some marches off; otherwise their union against him on the field of battle may, from the very fact of their striking his position from different directions, prove even more disastrous to him than if he had allowed them to unite before he attacked them. Thus when Napoleon, during the Waterloo campaign, had broken in at Charleroi upon the intended point of concentration of the allied armies, he, with Ney opposing Wellington at Quatre-Bras long before the English army was concentrated, and himself able to act with the bulk of his forces against Blücher at Ligny before the Prussian army was fully concentrated, was acting in the most perfect way upon interior lines. But when, at Waterloo, whilst he was still engaged with Wellington in his front, Blücher broke in upon his flank, though the bulk of the French army was still between its opponents, that was a position of disaster. During the 1866 campaign the Prussians crossed the Bohemian mountains in two separate armies,—one from Silesia under the Crown Prince, one from Saxony and Prussia under Prince Frederick Charles. Had the army under the Austrian commander Benedek been concentrated in Bohemia, so that, whilst one part of his forces detained either the Crown Prince or Prince Frederick Charles, the main body could have been thrown against the other, Benedek would have gained all the advantages of interior lines. But when, on the field of Sadowa, whilst Benedek was still fiercely engaged against the army of Frederick Charles in front, the Crown Prince broke upon his flank, though the Austrian army was still in one sense between the two Prussian armies, it was so only in a sense disastrous for it. This event, in which an army attempting to take advantage of

Danger arising if enemy on exterior lines effects tactical junction.

the separation of two opponents is crushed between them on the field of battle, is described by German soldiers by the phrase that such an army is taken "tactically between them" ("*In der taktischen Mitte*"). The operation of acting on interior lines was the favourite form of Napoleon's strategy. He would have condemned unhesitatingly the attempt to carry out any plan of campaign which involved such a combination as the Prussians attempted in 1866. But in his day armies were not connected by telegraph.

Modification of "concentration."

We spoke (p. 36, *ante*) of the concentration of armies prior to a campaign as necessarily made out of reach of a concentrated enemy. A slight modification of this statement will now be understood from what has been said in the previous paragraph. If two armies acting against a third can so nicely time their union as to strike against the enemy on the field of battle within a few hours of one another, they gain all the advantage of getting their enemy "tactically between them." The difficulties, however, of this nice adjustment of time are so great that no prudent commander would deliberately beforehand arrange his general concentration in this way on the field of battle. Nevertheless, the fact that it is sufficient for the armies to have effected their junction so nearly as to be within reach of mutual support on a field of battle, considerably enlarges the area within which their union can be accomplished. Thus, at the beginning of the 1866 campaign, the Prussians had fixed the point of junction of their two armies at Gitchin; but, though it would have been possible for them to have joined their forces on June 30, they did not carry out this actual meeting. They were content with the fact that the two armies were, by June 30, in close supporting distance of one another. They only actually met on the field of battle of Sadowa.

There is a peculiarity in the strategical aspect of British campaigns beyond sea against savage tribes which requires a short explanation. Usually the difficulty lies in transporting from the base towards the front a sufficient quantity of provisions without eating them up on the road. Since the animals and men employed in transporting food and ammunition must themselves be fed, it is evident that if we send supplies for a day's journey forward the balance available for feeding the troops will be the amount the transport can carry, less two days' food for themselves, that is, one day forward and one day in coming back. Similarly, for a journey of eight days to the front sixteen days' food for the carrying animals and men will have to be deducted. In fact, more than this will be required, because when the journey is extended beyond a certain limit there must be occasional rest days. It is clear that if, as was the case in Abyssinia, in Ashantee, in the movement on Sikukuni's country, and, though with different transport, on the Nile and in Egypt, a march of many days beyond all supplies of food not carried by the transport has to be made, a point will be reached at which the animals begin to eat up all the food they carry. That can only be met by the system of depôting. That is to say, an accumulation of large supplies of food is made as far forward on the road as possible, and then from that point it is again pushed forward by one relay of transport whilst others fill it up from behind. But here again another point arises. If the whole army to be employed on the expedition were pushed forward to the front where the supplies are being accumulated, these supplies would be eaten up as fast as they arrived. The fewer the troops in the front the more rapid will be the accumulation. Hence the great secret of a rapid advance in this case is to keep in front only as many troops as are necessary, when well entrenched, to guard the accumulation

Method peculiar to campaigns in uncivilised countries.

of supplies. The more completely all others are kept back from the front the sooner will the expedition achieve the object for which it is employed. These are incidents which repeat themselves on every English expedition, while at the same time complaints are continually being made of the generals during the course of the campaign, for the delay involved in their doing the very thing which hastens achievement.

TACTICS.

Infantry.

In speaking of the changes which have affected strategy, we declared our belief that the *weapons* of strategy have changed since the Napoleonic era even more completely than those of tactics. It now becomes necessary to define the limits of what this statement implies. We have shown how, even in questions of strategy, the spirit of subordination and the nature and kind of co-operation which a minor leader has to give to his commander-in-chief have been affected by the changes in the size of armies, the scope of operations, and the developed facilities of communication and supply. This change, however, of the spirit of organisation is, in so far as regards strategy, a comparatively secondary matter. Among the few men engaged in the actual command of armies and army corps, it is almost an affair of personal arrangement and of mutual understanding how far the subordinate acts independently, and how far he merely carries out the precise directions of his superior. Where men are so well known to one another as were, for instance, the leaders of armies and army corps of the Germans during the campaign of 1870, the generals of such great bodies as these could judge from personal knowledge of the characters of those under whom they were acting

what degree of latitude to allow themselves in the interpretation of orders. We see the evidence of this everywhere. This personal confidence, this mutual knowledge of one another among the higher leaders of armies, has become an essential instrument of modern war. The general who has men under him whom he does not know and cannot trust, suffers now in a degree in which he never suffered before.

But when we come to compare the effect of modern changes on the spirit of strategy, in these matters of discipline, with its effect on tactics, there is no proportion between the two.

The essential value of the older training.

Discipline is the very life-blood of an army, and it is on the field of battle, that is, within the province of tactics, that it shows its potency. To interfere in any way with this spirit, as it determines the power of the commander over his men in the presence of the enemy and under the stress of battle, to introduce the least malignant influence into it, is to blood-poison the army. Therefore, as no army can now-a-days hope, in presence of a modern enemy armed with the weapons of to-day, to carry out a system of manœuvres in which discipline can be maintained with the old facility, and under conditions so favourable to it as those of the past, we must approach the subject with a caution proportioned to its vital importance. Curiously enough, it is from an English scientific author, from Mr. Darwin, that one of the ablest of recent German writers on war has borrowed the penetrating phrase which sums up the essential element, common to the discipline of the past with that of the present, which it is vital to us not to shake or to impair. The engrained habit of mutual confidence among all ranks of a regiment is the factor in its strength which attracted Mr. Darwin's attention as the cause of its incalculable superiority in power over an armed mob. Baron von der Goltz accepts the statement as true, without reserve. When, how-

ever, we come to consider what has enabled armies to acquire this engrained habit, we are met by some very curious experiences. In the first place, the instinctive habit of obedience to a word of command, as coming from one who has the right and the duty to give that command, has to be carried into the very limbs of a man. When cultivated men of mature years entered the ranks of the British Volunteers during the early stages of the movement, some very amusing protests appeared in print as to the dreary monotony of the mechanical contortions which represent the early phases of recruit drill. A certain pity or sympathy was expressed for the poor soldiers who had to spend their lives in such uninteresting tasks. It would hardly be too much to say that the complaints of these very superior persons showed a want of philosophic acuteness, which is entirely absent from the minds of the most zealous Volunteers of our day. No one understands better than these the fact that in the dull mechanical routine of those incidents of recruit drill is laid the foundation of all military power. The zealous barrister, who at thirty-five always found himself turning by mistake to the right when he was ordered to turn to the left, who found it impossible to supple his limbs in the required "extension motions," was unconsciously illustrating the weakness of the most zealous untrained armed man. With the best of wishes his body was so little under the command of his own mind and will that he could not, much as he wished it, place it at once under the command of any one else. Much less could he cut out that disturbing element himself so far as to obey instinctively, and without a certain element of resisting individuality, the command he received.

Necessity for securing the power of united action.

Now the capacity to act together under the orders of one man can never be dispensed with under any of the conditions of modern war. The instinctive obedience of a rank of soldiers to the order to turn "Right about," when

that order sends them back into the ground where shells are bursting and where bullets are raining, has been a power in fighting too great for us ever willingly to throw it away. Some humorous illustrations of its effect on soldiers, and of the victory-winning power which an even apparently unintelligent submission to this authority of instinct has given, more especially to English soldiers, are mentioned by the late Sir George Pomeroy Colley.* In proportion as men understand war they value this effect, and would be unwilling even to diminish at a given moment actual loss of life if that diminution were secured by any sacrifice of this power. An old English battalion trained to the absolute perfection of such mechanical obedience was a splendid fighting instrument. No training, however perfect, to take advantage of ground, to seek cover, to glide on to the weak points of an enemy, will compensate, even in these days, a deficiency in that habit of utter self-abnegation, of entire subordination to the one purpose of united action under assigned orders. But, under the modern conditions of war, the loss inflicted within a given time by the terrible weapons now in the hands of all armies is so great that the very formations under which on a parade-ground the armies of the past prepared to move in actual fighting under the orders of their commanders are mechanically as much as morally dissolved. Not even can the voice of the captain or the subaltern be heard, much less that of the lieutenant-colonel, above the din of breech-loaders and of shrapnel shells. It is not, therefore, with a light heart, not willingly, not as thinking that a dispersed order of fight is something in itself more powerful or more advantageous than a rigid formation in which ordered and orderly movement is easy, in which force can be concentrated, in which the habits of discipline can be more certainly maintained,

Difficulty of this under present conditions.

* Article "Army," *Encyclopædia Britannica*, ninth edition, vol. ii. p. 589.

but of dire necessity, that the most experienced soldiers of our day have come to the absolute conviction that only by preparing armies for fighting in dispersed order can discipline be maintained at all. The great problem of modern tactics, in so far as it concerns actual fighting, which regulates everything else, is how to maintain the old unity under the new conditions which make it so difficult.

Manœuvring in breech-loader fight not possible.

This much at least we know, that from the moment that infantry are actually involved in a modern breech-loader fight all manœuvring has ceased to be possible. The natural and the necessary deduction from that is, that the only influence which can be exercised upon such a fight by any but very subordinate leaders is to throw into it fresh bodies of men who till then have been retained in close formations. Now the experience of the 1870 battles showed clearly that the effect of fresh bodies thus thrown into a fight is very great indeed. Moreover, that experience showed further that the direction in which the fresh force is thrown into a contest already engaged between two bodies of infantry is vitally important in determining how great the effect of the blow so delivered will be. The tendency of any great fight is to break up into a series of partially independent actions. Therefore it almost always happens that in each of these there are on both sides certain weak points which present opportunities to a skilful assailant. These arise either from circumstances of ground or from the inevitable disconnection produced by the isolated action of particular bodies of troops. Skill now consists in taking advantage of these opportunities, in anticipating the conditions under which they are likely to occur, in preparing to escape from similar dangers, and in pressing home a success. Here, then, is the way in which the organisation, spoken of above as a means of battle action, makes itself felt. It is impossible now for the commander-in-chief of a

great army to be ready at each part of a battle for one of these emergencies. Scarcely can the commander of a division of 10,000 men, or even the commander of 3000, meet all the local incidents that occur. At each stage of the hierarchy there is needed a man who, in proportion to the extent of the opportunity or the danger, is ready to seize or to meet it.

The re-formation of stragglers into reserves.

But among the means of doing this which the practical experience of the Prussians taught them is one which tends more and more to be forgotten as the experiences of the great campaign are lost in the distance of the past. As the phases of any battle now succeed one another a time comes when the fight sways forward, and many men are left behind out of the immediate region of the combat. Often these stragglers are more numerous than the men engaged in the actual shooting line. They may be in a wood or for some other reason out of the reach of the enemy's projectiles, or they may at all events not be severely exposed to them. What is wanted is, to take advantage of this wasted power and to throw it into the fight. This can only be done effectively by getting the men into closed bodies, and so bringing them again under orders and discipline. This was what the Germans—or, to speak more accurately, the Prussians, who in all these respects were head and shoulders over all their German compatriots—habitually did.

Points to be attended to in modern infantry action.

The study, then, of the mode of preparing infantry for the fights of the future does not in these inner circumstances of battle consist in training them for some particular forms of attack nearly so much, at least, as in the following points:—

1. In accustoming the men, as soon as, from any cause, they find themselves thrown out of the actual fighting line and out of the stress of fire, to place themselves instinctively and as quickly as possible under the orders of some officer

who can get them into order, and either lead them on or await the moment when the services of a formed body of men will become invaluable;

2. In accustoming officers to seek all opportunities for re-forming dispersed men at the earliest possible moment;

3. In maintaining such close order as is possible as long as it can be maintained without risking overwhelming loss of life and dire confusion,—hence, therefore, the breaking up into such small organised bodies as, by taking advantage of ground or other means, may be able to preserve unity of action longer than would be possible with greater masses;

4. In keeping up, by the action of the higher ranks of the military hierarchy, the fighting connection between these bodies, by the judicious employment of fresh force or of reserves made up out of men who have been already engaged;

5. In providing for the continual replenishment of ammunition close to the fighting line of at least all those who are not actually engaged in it, and the continually thrusting into the fighting line of men well supplied with ammunition to push forward the line, so that those who have exhausted their ammunition may be resupplied without having to fall back; and

6. In practice and training during peace in a mode of action which cannot be simply learnt on a parade-ground by help of drill-sergeant and words of command taught by rote.

We have taken first this question of the change which has taken place in infantry fighting, because it is on the forms of infantry fight that the changes in armament have produced their greatest effect, because the main substance of an army always consists of infantry, and because the changes which have occurred in the use of the other arms, artillery and cavalry, have been determined by the changes

in infantry tactics and arms more than by any other cause, though the development of artillery armament has also affected them.

Effect of engrained habits of a long peace on all armies despite recent war experience

Now the danger which faces *all* armies, even the German, in preparing for modern battle lies in the fact that the long peace which followed the great wars of the end of the last and the beginning of the present century has tended to stereotype forms which were originally based upon the battle-experience of the past. There is a dread of change where change is required, because officers and men have come to look upon the great traditions of the past as sacred. Among us men wish to follow in the footsteps of the soldiers who acquired an experience under Wellington such as no men since then have had. It is in its essence a sound and healthy feeling. But there is the greatest danger lest names should be put for facts, lest in the very act of servilely copying forms we should ignore altogether the principle which determined the action of our forefathers. They started from the experiences and necessities of the battle-field as these existed in their own day. They based their forms upon those necessities. If we would really imitate them we must in this do as they did. We cannot take their forms based on the battles of their own time, and then work forward from these forms to what we shall do on the battle-field now. We must frankly face the fact that, the character of battles having changed, we must work back from the conditions of our present battle-fields to the peace-forms which will prepare our soldiers for them.

"Practice" and "theory." Confusion of terms.

Terms under such circumstances become confused. Men talk about the practice of forms in which their life is spent as "practical work." They look upon all experience gathered from the fields where shells actually burst and where infantry firearms are used to kill as "theoretical."

The truth is exactly the opposite. Such merit as the older drill at present has, is due to certain theoretical considerations which were at one time soundly deduced from practice in the past. The only practical work is that which tends to prepare men, not for the inspection of some general on a parade-ground, but for actual war. An army is doing "practical" work in the preparation for its real duty, that of winning battles. It is employed on mischievous theoretical work, on false theory, whenever it is doing anything else.

Group fighting and "control drill."

Now this one thing is certain, that, whereas the great fighting formation of the past for British infantry was the line, that formation can be used no longer in actual fighting against troops armed with modern weapons, unless exceptionally in purely defensive positions, where its trained cohesion is of little importance, because cohesion is in any case easy. All the rigid drill of the past was based on the assumption that wheels of parts of this line were necessary in order to enable the troops to keep together shoulder to shoulder. What is required is not this, but that we shall obtain by complete organisation down to the lowest units a command of fire and a command of groups. Of all the incidents of a modern fight, that of which it is the hardest to give any conception to any one who has not seen infantry, possessed of the enormous facilities for firing which are supplied by modern arms, is the intense absorption in the mere fact of firing, which almost like a catalepsy takes possession of the man who is using his weapon against an enemy, or, as may often happen in close country, against nothing at all. Many of the rifles that were picked up on Majuba Hill were found, at the last moment when the Boers were closing, sighted to 800 yards. It is noted as a quite remarkable act of presence of mind on the part of a Prussian sergeant during the attack on St. Privat, that he

personally took care that the men reduced their sights to the proper range as they advanced. This illustrates perfectly the kind of trained habit which we need by our modern drill to induce in men in action. We want to educate men so that they do not fire under the conditions of a catalepsy. Experience has shown that this can only be done by having men, who are not themselves firing, trained to look after those who are firing, so that the fire may be regulated, effective, and deliberate. The men themselves must be trained only to fire under orders, and never under the influence of a tendency to relieve their feelings. We cannot put better what is involved in these necessities than in the words of Colonel J. H. A. Macdonald * of the Queen's Edinburgh Rifle Volunteer Brigade:—

"How is this to be done? How but by so regularly, consistently, and persistently putting the soldier through the action of firing by orders that it shall be a second nature to fire his rifle only under control of his superior, and not otherwise. What is wanted is the conviction in the mind of every instructor, from the highest to the lowest, that his men should never leave a parade without having gained something in fire discipline—that is, that fire control drill be one of the main points in view as a necessary part of the work to be performed on every occasion when men are being drilled, exercised, or inspected, from the moment that they know the rifle exercises until the day when they leave the service. Let some of the time which formerly was spent in a perpetual *form* drill to produce a military machine that had a steadiness in formation which nothing could shake be now spent in producing, by a perpetual *control* drill, a firing organism which shall have a steadiness in the use of fire which nothing can shake. The troops that shall be found most in the hands of the

* Now Lord Justice-Clerk of the Scotch Court of Session.

commander in the matter of fire will, *cæteris paribus*, be invincible." *

Organisation required for this.

But in order that we may secure this end it is essential that the organisation be carried down to the smallest groups within a company, and our drill must be adapted to deliver such groups as methodically and regularly as possible within the zone of fighting.

Necessity of experiments to determine tactical forms.

It does not appear that any adequate attempt has as yet been made experimentally to determine the means by which this can best be done. Experiments during peace-time are in no sense wholly satisfactory. In order that they may be worked out properly they require to be watched at every stage by men who have closely studied the experiences of modern war, and know what has been done by other armies, who have learned from those experiences not slavishly to copy what was done by men who were themselves experimenting under the dread conditions of actual warfare, but to extract from them sound lessons for future guidance. To quote again from Colonel Macdonald:—

"Would it not be wise to do what is done in other departments of military science, and give some facility for practical and exhaustive experiment? In all other departments practical experiment goes merrily and expensively on. Thousands of pounds are spent on a gun which penetrates another inch or two of armour. New and thicker plates are rolled. A new 'Big Will' is built, and again crashes through the armour with its first shot, and perhaps blows off its own muzzle with the second. Treasure-devouring sea monsters are built superseding one another at short intervals. Torpedoes, torpedo boats, and machine guns are subjected to crucial experiments. But from the nature of the material with which experiment has to be

* "Common Sense on Parade; or, Drill without Stays" (p. 118), by Colonel the Right Hon. J. H. A. Macdonald, C B., 1886. Blackwood.

conducted in the case of the most important land fighting machine—the infantry—the circumstances are exactly reversed. Experiment would cost nothing; but, while inventors can experiment in armour metal, gun-building, and rifling and explosives, before offering appliances to the Government, there can be no practical experiment with the only material out of which the infantry machine of war is made without order from authority. It is only by leave of the State, through its officers, that any proposals to improve the working can be tested, and—as is the case in all inventions—not only tested, but developed and improved by experiment. Almost all successful invention is the result of alternate thought and experiment. There is also the further difficulty that the proposers of tactical improvements are not independent men, but servants of the owners of the material. They cannot consistently with discipline proceed as other inventors are able to do. They cannot canvass higher officials or exert extraneous influence. They may not use the soldiers who happen to be under their control as material for experiment.

"Further, even if it be permitted to them to exhibit these ideas experimentally, the material with which they must do so is not dead material, plastic and absolutely passive. They have to test their invention with materials which have been turned into a machine already on a different system, and have therefore a way of working which unconsciously at first militates against the display to the best advantage of the new idea."

Colonel Macdonald's proposals.

These conclusions appear unanswerable. Though, for the reasons which are implied in the very sentences we have quoted, we are not as yet prepared absolutely to advocate any specific system, it appears to us that the method of working which has been suggested by Colonel Macdonald promises such valuable results that it ought at least to be

fairly tried on a large scale. It has received the warmest possible support from the best infantry soldiers of the English army—from Lord Wolseley, from Sir Donald Stewart, and many more. It has been approved in principle by many others, who have not had the opportunity of examining its practice. It has been successfully tried and experimented upon so far as peace-trials go, both at home and in the colonies, and has been greatly appreciated by those who have tried it. It consists in a method of permanently arranging a company in four ranks, so that from these the successive bodies of firing line supports and reserves may be successively sent forward. It has several important recommendations. It limits the front of a captain's command. By forming groups of eight men of those who stand side by side in the fours it carries organisation down to the lowest point, while it tends to bind together, by the principle of comradeship, the supports who successively arrive to the men who are in front. By making this comradeship apply to those who form the two adjacent groups of four of the company when in line, it ought certainly to facilitate the re-formation of the company. On Colonel Macdonald's system, each group of eight being fixed, the company can be fitted together by the gathering of these groups in any order, so long as all are in their proper places within their own group of eight.

Experiments prior to Peninsular War

In any case, going back once more to the experience of the past, we are now at a time in these matters very like that which preceded the Peninsular War. The drill which was employed in the Peninsula was in all essentials worked out by Sir John Moore in a series of experiments conducted at the camp of Shorncliffe. No more important results were ever obtained by peace-training for war than those which were deduced from these experimental exercises. If we really reverence the great soldiers of the Peninsula, this

is the way in which we shall honour them. We shall not do what they did not. We shall not accept from the traditions of the past forms which are not adapted to actual warfare. We shall not write drill-books in the study or the bureau, and force field movements into conformity with them. We shall employ for the work of our great camps of exercise generals who have made an exhaustive study of the present conditions of warfare, and staff-officers who can assist them in their work. We shall experimentally try "those suggestions which have upon them any reasonably good stamp of approval by military men of skill." We shall really and crucially investigate them, "with opportunity afforded to proposers to meet difficulties that may be suggested." "Those proposals which can be defended from serious theoretical objections should be submitted to a few months' experiment in selected regiments, and reported on as to their practical working in the essential points of simplicity and uniformity of manœuvre, adaptability to circumstances arising, maintenance of order, retention of unity of commands, rapid recovery of exact tactical form, and fire control. Then let authority take what is best; it may be adopting here one detail and there another."[1]

Russian system of fours.

The Russians at one time adopted and abandoned a system of working by groups of four. So far as we are able to perceive, Colonel Macdonald's system is not open to the objection which led the Russians to abandon their method of fours. They found that, when they had formed their groups under a "father" who became the leader, the men were so much attached to one another that as soon as one was wounded all remained with him, so that every time the enemy wounded one man four were put *hors de combat*. It is clear, on the one hand, that this is

[1] Colonel Macdonald, as above, p. 127.

an objection that would not present itself in mere peace practice at all, so that the necessity for criticism applied at the time from actual experience of fighting shows itself forcibly. On the other hand, it by no means follows that the difficulty would not be overcome by such a closer association of groups as Colonel Macdonald's system appears to promise, and by a trained habit of trusting that the wounded will be properly cared for by the men assigned for that purpose, and a knowledge that the business of all those who are able to continue the fight is to ensure the safety of the wounded by securing victory. The one point that must be thoroughly realised is, that the firearm of the present day has become the determining weapon, for the development of the efficiency of which all tactics must prepare the way.

Importance of connecting good shooting with drill.

That brings us to another matter of vital importance. As long as the shock tactics of the past were possible, the neat drills of the parade-ground were the essence of soldiering, and therefore, when a few rifle regiments at first, and afterwards the army generally, had liberty to practise shooting, that was looked upon as an accidental and exceptional thing unconnected with the real business of the soldier, and therefore with his everyday life. This unfortunate divorce between the work at the butts and on the manœuvre-ground, once established in the habits of an army, cannot for many years be cured. It exists still. Yet every manœuvre in which careless aiming, careless expenditure of ammunition, and wrongly adjusted sights are permitted, is a direct injury to the fighting efficiency of the force which manœuvres. Nothing else can compensate for the evil so done. Good shooting, and movements tending to give to good shooting and good weapons the greatest possible advantage, are, next to a healthy morale, the essence of modern fight.

Nevertheless, it is the training of the spirit of an army, the bringing home to all ranks of the objects now to be aimed at, that is the difficulty in all these matters. The very strength and power of discipline in its formation and engraining of habits is that which makes an army so hard to deal with when habits have to be changed. The change must be one accepted by army itself.

In the present condition of the tactical question it has seemed to us essential to devote so much space and pains to the enforcing of these points that we can only lightly touch on several questions that have been most eagerly discussed in relation to infantry tactics.

The question of long-range fire against reserved fire is mainly a question between material and moral effect. It seems no doubt a strange thing, when we have enormously increased the range of modern weapons, that we should throw away that advantage, and allow an enemy, without firing a shot at him, to pass over a large area of ground where we could inflict loss on him. Undoubtedly, in so far as we can train picked shots to fire at long ranges, so as to disturb the movements of columns, and to interfere with artillery, it is well worth our while to do so. But with the utmost training that we can give them the mass of men in the ranks of an army never will become good shots at long ranges. Almost all fire, therefore, at long ranges becomes unaimed fire, and an enemy can to a great extent avoid exposing himself on the ground where the fortuitous rain of bullets is falling. Meantime the mere fact of firing having begun puts the troops who are firing almost beyond the reach of orders. Their own excitement and the noise together make it most difficult to give them any directions. Sights that have been fixed for the long range are not changed to the short. The fact that, despite all their efforts, the enemy continues to advance demoralises them, and despite his losses encourages him. These are

Long-range and reserved fire.

considerations which are not taken into account in the arguments of those who base their conclusions merely on the amount of loss which may be inflicted at very long ranges. Yet, at all events up to 1877, they had in actual fighting proved supreme. It may be the case that a very highly trained army, using long-range volley firing under effective control, might produce such loss upon an enemy approaching that it would make his actual attack upon a position impossible. What is certain is, that up to 1877 there had been no experience in war which proved that such long-ranged fire was as effective as fire carefully reserved for the ranges within which infantry can use their arm with the greatest effect.

The unaimed long-range fire at the "Green Hill."

Such, at all events, was the experience of the 1870 campaign, and it confirmed the experience of previous wars in certain respects which, as will have been seen from the above account, depend rather on the condition of men's minds than on the efficiency of weapons. Both, however, in the German army and in the French an immense impression was produced by the incidents of the attack on Plevna. There is no doubt that there the certainly unaimed fire of the Turks produced an enormous effect. Skobeleff, when he had at last succeeded in reaching the "Green Hill" in one of his own most brilliant efforts, found that there were no troops behind the slender line of skirmishers whom he had actually with him. All his reserves had melted away under the storm of bullets. If this experience could be accepted as representing a normal phase of a modern battle, the conclusion would be inevitable that so long as there are ample supplies of ammunition the effect of long-range fire may be so great as to be decisive. It would be madness altogether to reject such an experience. Where analogous conditions occur no doubt a better regulated long-range fire is too important

an element of power to be ignored. But it is necessary to realise what the conditions were. In the first place, the whole attack was one that never ought to have been made. It never would have been made had not the commanding Archduke overridden the advice of all the best soldiers he had, and in mere obstinacy and ignorance dashed his men against a position that ought never to have been so assailed. It was an attempt of a field army against what had almost become a fortress. The Russians were unsupported by any adequate artillery for its reduction. The ground was unusually open and exposed to the full range of the Turkish fire. The Russians showed here just the same incapacity for taking advantage of ground, so far as the smaller groups were concerned, which they had shown in the Crimea. They huddled together in great masses, more unwieldly than, but just as much exposed to unaimed fire as, any regular column. There was therefore nothing to show that a properly conducted skirmishing attack might not have found means of reaching the position which Skobeleff actually secured.

Balance of experience.

Nevertheless, when all these allowances have been made, and while it seems as important as ever to realise what advantages the sudden effect of reserved fire may secure, the fact remains, that under certain very possible conditions of fighting an extensive employment of long-range fire may be advisable, and it is therefore right that every army should prepare for such an event.

Special cases of long-range fire.

For instance, in an attack on the *forts d'arrêt* with which the French have covered their frontier, it is extremely probable that the Germans, being close to their own magazines, and therefore able to employ a practically unlimited amount of ammunition, will overwhelm these places with long-range infantry as well as with artillery fire. There is no doubt that their infantry has been practised in firing

volleys at very long range, and for such purposes it would be certainly comparatively easy to ensure the delivery of actual volleys. It may even be the case that in defensive positions, where the extent of ground open to view is considerable, long-range infantry fire regulated by volleys may be attempted. We cannot, however, see how it would be possible to attempt this during an attack unless one special body of troops be assigned for the work of long-range fire, in order to occupy the attention of the enemy whilst other forces advance to the attack. On the one hand, the discipline of the French army was so loose during the campaign of 1870 that it is quite possible that long-range fire might be much better brought under control than it was by them; on the other, it is emphatically necessary to assert that the difficulties involved in a free employment of long-range fire are not merely those of an adequate supply of ammunition, but that those considerations to which we have drawn attention must be taken into account. If an army is sufficiently well in hand for the choice between long-range fire and reserved fire to be in the option of the general who commands, then undoubtedly cases will arise when each may be used with advantage. Certainly it would not be a wise or safe thing for an army to enter the field without having ever practised the regulated fire by volleys at long range against an army which had practised it. It is clear that the tendency in that case would be for the unpractised to indulge in much unregulated long-range firing. With an army trained to both methods of action, the general who realises the risks and advantages of either will be able to exercise a sounder choice than the man who has become an inveterate pleader for either system, and cannot therefore adapt himself to the cases that arise.

Volley-firing.

The general question of volley-firing as against individual shooting is independent of the special use of volleys for very

long-range shooting to which we have above referred. It may obviously be possible to ensure the regular delivery of volleys at very long ranges, such as the French are now practising, 3000 yards or more, without its being possible to do so in anything that can properly be called an engaged fight. The effect produced by a well-delivered volley is out of all proportion great as compared with the effect of isolated shots. Moreover, it is a curious fact that apparently men aim better when they fire together than when they fire each by himself one after another. It is constantly found at the butts that the greatest number of shots has been delivered by the "best volley," that is, the one in which all the arms go off most like one. But it is a matter of great doubt whether in war it is practically possible under most circumstances to deliver a volley at all. Captain May, the author of the "tactical retrospect" on the 1886 campaign, denied that any volleys had been fired in that campaign. The cases of its employment in the 1870 campaign which are sufficiently established not to fall under such criticism as he applied to the nominal volleys of 1866, are not very numerous. We may leave the question with the remark that the moral effect produced by a volley is too great for the attempt to use it ever to be willingly thrown away, but that it would be now rash to take for granted that on service the best troops can be depended on to deliver during close fighting accurate volleys, unless it be in small parties. The possibility of even the fire of groups is disputed by Von der Goltz. It is obvious that, if he be correct in this respect, all attempt at regulating fire in action is

> "An effort only and a noble aim,
> Still to be sought for, never to be won."

We incline to think that all war experience tends to this conclusion, and it is a reservation which we must therefore

append to our cordial agreement with the passages we have quoted from Colonel Macdonald.

Cavalry.

Extent to which ground affords cover and facilitates surprise.

Of all tactical facts, the one which needs most study for practical purposes is the relation of the size of men, on foot, mounted, in mass, and in different formations, to the undulations and features of ground. There is nothing which the untrained eye so little realises as the extent to which concealment and cover for men, even for mounted men, exists on the apparently most level plain. This fact, which is important for both the other arms, is for cavalry vital to its present use. Nothing is more certain than that, under the present condition of arms, cavalry cannot successfully assail in front either artillery or infantry in any formation in which the artillery or infantry are able to use their arms and can observe the approach of cavalry over long distances.

Importance of this to cavalry action.

On the other hand, cavalry striking by sudden surprise on the flank of unprepared infantry or artillery, engaged with other enemies, may produce an effect, great to an extent of which as yet we have no adequate example in modern war. That is the conclusion drawn from their own experiences of the 1870 campaign by the most experienced leaders who were employed in it. Count Von Moltke in 1882, and Prince Kraft of Hohenlohe-Ingelfingen in his letters on cavalry published in 1887, have alike pronounced decisively on the subject, and it would be easy to show that the whole weight of the best military opinion in all countries except Russia is on the same side.

The two facts which aid cavalry in modern battle.

The practical possibility on most fields of battle of cavalry being thus employed depends on two facts—on the one hand, the extent to which almost all ground presents opportunities to a skilful leader for moving his men unobserved from point to point of a great battle-field; and

on the other, that absorption in the intense excitement of a modern fight which prevents men from seeing what is taking place anywhere beyond the immediate range of their own employment.

Importance of cavalry training being adapted to these facts.

It follows from this that the utmost possible skill in the handling of cavalry as a mounted arm will be required if cavalry is to take advantage of such chances as modern fight will present to it. Now, in all periods since the invention of firearms there has been a tendency, as improvement in weapons has taken place, to attempt to put cavalry on a level in point of firearms with the infantry with which it has had to contend. Invariably, when that rare development of armies, a great cavalry leader, has arisen, he has swept away all attempts of the kind, and has employed his cavalry with their proper weapon, the "*arme blanche*," sword or lance.

The proper cavalry weapon.

The reason of this is easy to explain, and the explanation is one that shows that the principle is as applicable to our present condition of warfare as to any preceding one. The effective action of cavalry as cavalry depends on ruse, on surprise, on skilful manœuvring, and on the impetuous power and moral effect of the man and horse, glued to one another as though they together formed the old ideal of the arm, the centaur. Now, the dash and vigour with which an actual cavalry charge takes place depends on the moral condition of that part of the centaur in whose hands it is the great purpose and effect of high training to place the guiding of the composite animal. Never has it been possible to train a great body of fighting men in two opposite directions at once. Balanced judgment, and an appreciation of the powers and uses of each part of the force he has to employ, are the duties of a general. But if a body of infantry, dispersed in scattered groups, or isolated men, are to repel successfully a body of charging

cavalry, they must have acquired sufficient *sang-froid* to calmly fire at the great and overwhelming avalanche which they see moving down on them. To that end they must have acquired confidence in their weapon, the firearm, and must have learnt to believe that its power is so great that it gives them plenty of time to bring down the mighty-looking horseman before he closes with them. Similarly, if cavalry is successfully to be led by skilful manœuvring into a fight where firearms are creating the most horrible appearance of danger, they must have acquired a confidence in the skill of their leaders, in their own power of combined action, and in the effects of their sudden appearance which will carry them on though leaders fall, and though death and destruction seem to await them. In other words, they must have learnt to despise the firearm when pitted against their own skill in evading its danger and in delivering home their blows. All attempts, therefore, to train cavalry not to employ their skill in manœuvring as the weapon to which they trust, but, on the contrary, to be always ready to jump off their horses and begin firing, tends directly to weaken and destroy the very spirit and quality on which the efficiency of true cavalry depends.

The belief of modern leaders.

Now, the great leaders to whom we have referred believe absolutely in the possibility of true cavalry properly trained being able to play its part on the field of battle. Prince Kraft's seventh letter on this subject is so admirable in its analysis of past experience that all who would understand the subject should study it in its integrity. His conclusion is: "From all that I have stated in this long letter I draw the conclusion that cavalry will, in the future, also be able to play a decisive part in battle if they can be led in such a manner that they can break out round a flank, and can thus, up to the last moment, take advantage

of the fire effect of their own line of battle. But to do so will sometimes require from the cavalry that they shall be able to advance as much as four miles, at a rapid pace, before they deliver their charge." *

Mounted infantry.

There is, however, another necessity of modern warfare which is altogether distinct from the question of supplying firearms to cavalry in order to make up to them for the increased power of infantry. Powerful as modern infantry is, it is very slow in its movements. It is very difficult for a general to have it at the very place where he wants it. Hence the idea of mounting infantry and of sending them forward either on horseback or in carts, or where there are numerous roads on bicycles and tricycles, is one that is of the greatest importance. The so-called cavalry of the American Civil War were all of this character. Most of them had been accustomed to rifle-shooting from their childhood and could ride. They had had no opportunity whatever of acquiring the manœuvring facilities of European cavalry. Probably European cavalry would have been altogether unsuited to the country in which they had to work. The essential condition of the efficiency of mounted infantry, which these men in fact were, is that, while they can ride well enough to get over such ground as is required, they waste no time in learning manœuvres which they could not master, but look altogether to fighting with firearms and on foot whenever collision becomes necessary. The Boers represented an almost ideal body of this kind. British wars have supplied most valuable bodies of mounted infantry, who have been always picked men, picked shots, and excellent infantry. As a general principle, it is safe to say that they ought to be under infantry and not under cavalry officers, as to their immediate command,—though

* Translation in *Royal Artillery Institution Proceedings*, April 1888, p. 40. See also *Die Kavallerie Division als Schlachtenkörper*, 1884.

very often indeed they will be a most valuable auxiliary for any cavalry commander, who will in that case, of course, have the whole body under his orders. In so far as their presence tends to save cavalry from the disastrous necessity which occasionally befalls them of having to employ their men in fighting on foot, their presence with cavalry is always valuable. But as the time when all their best training is required is when they are actually fighting on foot, it is far better that they should then find themselves under the orders of an officer whose training tends to make him accustomed to handling men on foot, rather than to one all whose experience ought to have accustomed him to handle men on horseback, and to hate making them jump off their horses.

False deductions from peace manœuvres and 1870 campaign.

The difficulty in enforcing these principles lies in the fact that it is only the experience of war on a large scale which brings home to cavalry officers the disastrous consequences of injuring their own power by continually trying to take up the *rôle* of mounted infantry. They find themselves at peace manœuvres continually put *hors de combat*, because they have come under the fire of infantry. They can very often get into positions where, if they were infantry and in large numbers, their effect would be most telling. Their rapidity of movement enables them to do this. A narrow deduction from a very incomplete knowledge of the experiences of cavalry charges during the 1870 campaign led to the conclusion that cavalry could not be employed on a modern battle-field in their proper work. That conclusion is utterly rejected by all those authorities who have had the best means of analysing the experiences on which it was based; yet it remains a tradition which unfortunately affects the minds of many cavalry officers as well as those of many other officers in the army.

Value of each arm in its proper place.

It is safe to say, in conclusion, on this matter, that the two forces of cavalry and mounted infantry are each of the greatest value, provided they each adhere to their own proper function. As soon as mounted infantry begins to attempt manœuvres on horseback it necessarily becomes a very inferior cavalry. As soon as cavalry takes to dismounting, its equipment, its training, and usually its arms, are sure to make it into a very inefficient body. Every year adds to the necessity of high-shooting training for infantry, and of every hour of their work being connected with the efficient use of their arm. Every hour devoted by cavalry to shooting which subtracts anything from training in their own proper work, or which leads them to compete with the other arm in that way, weakens them. At the same time, it is quite right that, as cavalry may sometimes be necessarily employed on foot, they should learn the use of their firearms. A regiment that can shoot well, with other things being equal, will be better than one that cannot. Nevertheless shooting ought to be for them always a most subordinate matter on which they never rely. By no process can they compete with infantry if they measure themselves with them under the conditions favourable to infantry fighting. Nothing is more fallacious than the notion that because, during the latter part of the 1870 campaign, the German cavalry often fought on foot, it follows that the Germans therefore consider such fighting the proper employment of the arm. Prince Kraft emphatically says: "The circumstances of the latter campaigns of this war were so abnormal that no rules for the employment of the arms can be deduced from them." No cavalry could perform the duty the German cavalry here did, of saving their own infantry by acting on the wings against the French infantry, "except in the case where they were engaged with an enemy whose hastily collected

and undrilled masses had not the full value of regular troops."

Forcible illustration of views of German leaders on cavalry service.

We may also mention as an illustration of at least the views of the German leaders, that during some manœuvres in 1879 a regiment of lancers by sudden surprise charged from behind some rising ground at four battalions of infantry, who did not see the cavalry till these were on their flank at a distance of 200 yards already in full charge. Scarcely a shot was fired before the cavalry were among the infantry. The Emperor and Count Von Moltke were present, and the decision was that three battalions were *hors de combat*. Now, when it is remembered that a cavalry regiment numbers about 400 men and three battalions about 3000, the difference between the effect produced under such circumstances by a body of cavalry and an equivalent body of mounted infantry, who could not have dismounted at most more than 300 men, who would certainly have been destroyed, is too great not to be realised. In this case an instance occurred of what Prince Kraft mentions as a possibility continually illustrated by the experiences of the 1870 campaign. The colonel commanding the lancers, having moved personally to a well-chosen spot, had been quietly observing the movements of the infantry, himself unseen up to the moment when by a signal he gave the order for his regiment to advance at a gallop, and then charge.

Artillery.

The same tendency to a divorce between firing and manœuvring training as in infantry.

Here the first point it is necessary to insist on is, that the tendency to a divorce between firing practice and drill manœuvre has been inherited by the artillery from the past as it has been by the infantry. Napoleon's formation for the battle of Austerlitz placed his artillery guns between his infantry brigades and on their flank. The artillery

advanced nearly in line with the infantry, and rather in advance of it. As long as it was possible for artillery thus to move up to close quarters with the infantry, exact accuracy of fire training was of little importance. The distance was so short that the round-shot were bound to produce their effect. But when the range of both infantry and artillery fire were greatly extended, a change took place which required a change of habit in the artillery, for which the long training of the past had as little prepared them as had been the case with the infantry. The horse artillery, and at a much later date the field batteries, had acquired a mobility which enabled them very rapidly to take up assigned positions. But the habit of thinking that drill movements, irrespective of accuracy of fire, were the business on which a soldier's mind should be set continued to operate long after all idea of moving artillery cheek by jowl with infantry or cavalry had been abandoned. The practice-grounds of artillery for actual shell fire are necessarily much fewer and more difficult to select than the ranges for infantry. Hence what we have said of the tendency in infantry manœuvres to separate the effective fire of the ranges and the butts from drill and manœuvres applies with tenfold force to the artillery. Moreover, in the case of the artillery this tendency has been aggravated by a certain fear among generals and their staff officers of interfering in the detail work of a special arm. As long as a battery is seen to manœuvre rapidly, to take up an assigned and telling position, and to fire off a puff of smoke, the superintending general is apt to think that he may assume that all has been done that ought to have been done.

Unfortunately, it may happen that the battery which thus appears to have acted in the very smartest possible way may have all the time been learning to do just what will injure it for war service. Nothing is more noteworthy

throughout the 1870 campaign than the extraordinary superiority of the German artillery over the French. There were no doubt certain technical reasons for this; but by far the most important reasons were these:—(1) The German batteries had been trained habitually so to co-operate that a French battery almost always found itself opposed to at least a German brigade of four batteries when it came to fighting; and (2) at all their manœuvres the Germans had been training for war, while the French artillery had not. The German artillery had never fired off a gun which had not been properly laid at an assigned object, with the range determined, the nature of the projectile declared, and the fuse to burst the shell so far fixed that, had it been necessary actually to fire in earnest, every man would have gone through an almost exactly similar experience. The French, on the other hand, had piqued themselves on their dashing battery manœuvres, and had been content to fire off a blank cartridge as rapidly as possible, no matter how the gun was laid, or what would have happened about the shell.

German and French artillery training prior to 1870.

The same two schools at this moment exist among British artillery officers. The unfortunate tendency at present is for the officer commanding a battery who tells his subalterns, "Never mind how you fire; get off a puff of smoke, just to show where you are," to *seem* much smarter than the man who insists upon every gun being properly laid at an assigned object, and on having every possible condition fulfilled as it would be in war. The general who at a mile's distance sees the two puffs of smoke cannot tell the difference, though if he rode into the battery which has so promptly puffed off its smoke, he would probably find that one gun was inclined high in the air, and the next shooting into the ground ten paces in front of the muzzle. It is not too much to say that this latter battery has been

Danger of repeating French mistakes.

in every respect acquiring inefficiency by the day's work. It will be slow when it comes to action, because the men have never been trained to be as quick as the circumstances of action permit, have acquired no practice in rapidity under those conditions. It will have acquired no practice in actual shooting except its few annual shots on the practice-ground, which are sure with it to have been regarded as a most inconvenient interruption to the show drill and show manœuvres on which it has been employed throughout the year. This is the point of artillery tactics without which everything else is utterly valueless. As Prince Kraft of Hohenlohe-Ingelfingen puts it, "The artillery must in the first place *hit*, in the second place *hit*, and in the third place *hit*."

On whom responsibility lies.

It depends far more in England upon generals commanding districts and divisions and on their staffs than upon artillery officers whether this result is attained or not. It is almost impossible for the most zealous artillery officer to keep up the confidence and spirits of his battery, and to keep their work to the proper level if on every occasion they find that, because he insists on work being properly done, some other battery which is amusing itself with sham firing gets all the credit of superior smartness. The matter is therefore vital to the efficiency of this arm of the service. The infantry and cavalry will find in action that they rely on the support of a broken reed if the artillery generally has not brought the most efficient technical and practice-ground work into the closest relation with field manœuvring. Given that this has been done in the sense here described, Prince Kraft's next condition may be briefly stated, because its importance will be easily understood. "It must next be in a condition to come into position at the right moment, and, with this object, it must practise itself in getting over distances of many miles, and even forced marches of a day

or so, at rapid pace. If," he adds,[1] "it can satisfy these claims, it will give us everything which is needed as to its fitness for employment in battle."

All guns pushed into action without reserve to secure massed artillery.

So far we have spoken of conditions in which the tactical necessities of modern artillery are very similar to those of modern infantry. In the next point the contrast is as sharp as the analogy was close in the former instance. Infantry, as we have seen, once committed to a fight, is beyond the control of all officers not actually leading them at the time. Artillery under all but the rarest circumstances can be almost as easily moved from one point to another of a battle-field out of action in which it is engaged as if it were not employed in firing at all. Therefore the rule is now accepted in all armies that every gun that can be employed should as soon as possible be brought to bear on the enemy. The shorter time artillery is limbered up and the longer it is employed in action the more effective is its work. With a very large army Prince Kraft, whose authority on such a subject is probably the highest we have, makes a rather hesitating exception in this sense, that ordinarily the commander-in-chief of a very large army will have whole army corps designed for a particular work, usually for striking at the decisive point of a field of battle. With these their own artillery will naturally move. But so far as artillery is available on any part of a field of action, even including that of divisions and army corps kept back from the actual fight, as long as these are stationary, every possible gun will be pushed forward. The altogether overwhelming effect of a concentrated and massed artillery fire is so enormous, that whatever tends to increase the number of guns employed tends to give that superiority

[1] We quote from his correspondent's summary of his views, and from the translation given by Lt.-Col. Walford, R.A. These words occur in the seventeenth letter, *Royal Artillery Institution Proceedings*, August 1887, p. 187.

over the enemy's artillery which it is one of a general's first objects to secure.

Successive positions of artillery.

Ordinarily a battle will now begin by artillery opening fire at a range which is fixed by the necessity of the attacking artillery not exposing itself during the time that it is coming up to the enemy's effective fire with shrapnel shell. This is reckoned at about 3800 yards. From that point the artillery, as soon as it has been able sufficiently to occupy the fire of the enemy to make further advance possible, pushes in to a distance of from 2200 yards to 2700 yards. Infantry in the meantime will have been pushed on sufficiently to protect the ground thus to be occupied by the artillery from direct attacks from the enemy. At this point an artillery duel is practically the certain beginning of the regular battle. The artillery will fire at any of the other arms as soon as it is able to bring any effective fire to bear on them. It is no easy matter for infantry to attack other infantry until the artillery has prepared the way for them by a heavy fire. But the artillery will hardly ever be able to do this until it has established such an ascendancy over the enemy's artillery that the latter is either silenced or at least temporarily withdrawn.

Regulated battery fire.

No matter how great the mass of artillery that is gathered together, Prince Kraft, basing his conclusions upon the soundest reasoning, condemns altogether the independent fire of individual guns within a battery, and, unless exceptionally for the purpose of ascertaining a range, all salvoes of artillery by batteries or otherwise. Nothing is gained in point of the number of shell that can be thrown in a given time by firing battery salvoes instead of firing steadily gun by gun from the flank of a battery. After a salvo an interval of from thirty-six to forty-eight seconds at least is required before another can be fired, while with very rapid firing from the flank an interval of

from six to eight seconds allows a shell to traverse a range of from 2500 to 3000 yards, so that the effect of each shell can be seen.[1] The effect of this is to enable the officer commanding the battery to have his fire under control, and to induce much more careful firing by each gun. Indeed, if a German battery is seen to be firing, not from the flank but irregularly, it may be taken for granted that it is being mastered by the hostile fire, and is out of hand.

Supply of ammunition

The duty of each commanding officer of a battery is to be continually watching over the replenishment of his ammunition, and therefore as long as possible to draw upon his waggons for ammunition, keeping the ammunition in his limbers as a last reserve. If this cannot be done, the limbers must be filled up as rapidly as possible. If, however, by misfortune all ammunition is exhausted, the artillery must not retire, but must, for the sake of the moral effect, remain without firing rather than produce the encouragement to the enemy and discouragement to their own troops of withdrawing without express orders.

We shall complete this sketch of the duties of artillery in action by quoting the following summary from Prince Kraft of Hohenlohe-Ingelfingen :—

General rules.

On the Offensive.—(*a.*) Artillery, after it has silenced the enemy's artillery, must not as a rule approach nearer than from 1600 to 1700 yards to infantry of the enemy which is as yet intact and is not engaged with other troops. (*b.*) If the enemy's infantry is held in check by another force of artillery, or by infantry, it is not only advisable, but it is the duty of artillery to advance to a range of from 1100 to 1200 yards. (*c.*) At the most decisive moment of the action artillery must not shun the very closest range. (*d.*) As

[1] See the Prince's fifteenth letter, *Royal Artillery Institution Proceedings*, p. 171.

soon as the main attack has proved successful, the artillery must hasten up to secure the captured position by its fire; at such a moment its proper place, in most cases, is in the line of skirmishers.

On the Defensive.—(*a.*) The normal post for artillery in a defensive position (though this may be modified by the character of the ground) is 500 yards in rear of the foremost infantry position, provided always that the latter leaves the field of fire of the artillery open. (*b.*) Artillery must never abandon its position, even if the enemy come up to the muzzles of the guns, unless the officer commanding the troops has given orders for a general retreat. But this does not imply that artillery, acting on the defensive, are forbidden if the assailant begins to get the advantage in the artillery duel, to cease firing for a time, and to withdraw their guns under cover, with the object of suddenly coming into action again at the most critical moment. (*c.*) If the order to retreat is given, the only possible moment at which it can be commenced is either when the enemy has not yet advanced to the attack, or when he is preparing a second attack after having been repulsed in the first.

Horse Artillery in a Cavalry Action.—(*a.*) As a rule horse artillery should go in at once to a decisive range for the artillery duel, since the considerations which compel artillery when engaged with infantry to fight at longer ranges lose their force in this case, owing to the speed at which cavalry can move. From this position it will silence the enemy's artillery, and immediately afterwards, or as soon as it can see them, it will turn its fire on the enemy's cavalry. (*b.*) During the charge of its own cavalry it will fire on that of the enemy, or, if that be not possible, on his artillery. If it has nothing to fire at, it will remain in position with loaded guns (common shell and not shrapnel

should be used),[1] in order, in case of the failure of the charge, to give support to its retiring cavalry, and to show them where they are to rally. (*c.*) The horse artillery requires a special escort on that flank of its position only on which the cavalry fight is not taking place, and even there it requires it merely for the purpose of scouting; a section will therefore be sufficient. (*d.*) If the charge succeeds, the horse artillery must gallop up to the spot where it took place, in order to secure its possession with their fire, and to assist in the pursuit.

The Combined Action of the Three Arms.

Tendency to simplification of larger tactics.

So far we have spoken of what may properly be called the minor tactics of the three arms, though that name is often applied in quite a different sense. There can be little doubt that it is in that portion of tactics that the complexity and difficulty of the present stage of the question lie. As regards the larger handling of armies, the tendency of recent wars has been rather to simplification than to increased difficulty. The employment of artillery in great masses, never in isolated batteries, is, so far as that arm is concerned, its most important law. So much so is this the case that, even when as many as eighty-four guns were collected together at Wörth, the Germans found it answer best to turn all of them at once upon a single French battery, and then upon another, and so on. Wherever possible, some at least of the guns will take up an enfilading position; that is, they will fire from flank to flank of the troops they assail, in preference to firing directly at them. It is always advantageous to the fire of artillery to have great depth rather than great extent to fire at, because range is much more difficult to fix correctly than direction.

[1] See the Prince's fifteenth letter, *Royal Artillery Institution Proceedings*, p. 171.

Prince Kraft regards it as doubtful whether artillery can be employed in crossing its fire, the right of a long line of guns firing at an enemy's right and the left at the left, which would give to each a certain advantage in the direction of their fire. But it is clear that if the whole of a long line of guns be employed as at Wörth, first against one object and then against another, many of the batteries will not be firing directly to their front, but at an angle, sometimes a very sharp one, to their own front.

Mode of employing the artillery which begins an action.

In any case the earlier stages of a modern battle are sure to begin with a heavy fire of artillery, following either on some slight affairs of outposts or on the cavalry having ascertained the position of the enemy at least approximately. Then may perhaps follow, what we have already suggested as one of the alternatives, a carefully regulated long-range fire of infantry; then probably a gradual development of the infantry of the assailing army in front of the position to be attacked and certain tentative movements designed to feel the strength of an enemy's position. Then, as soon as the point to be carried at any cost has been determined on, every effort will be made to distract the enemy's attention from this, to occupy him at other points, and by engaging him all along the line to prevent him from reinforcing the point which it is essential to carry. At present the attempt will be, when possible, almost certainly to attack a flank. But, as the necessity of this becomes thoroughly realised, as it now is on both sides, and a tendency arises towards continual extension of the space occupied in order to meet outflanking movements, it is almost certain that on one side or other the extension will exceed the limits of defensive power, and that then blows will be struck with the object of breaking the too extended line. All the cavalry not employed in mere reconnoitring duties, or for keeping up the connection between different

Normal course of a modern battle.

parts of the army, will ordinarily be kept under the control of the commander-in-chief until he is able to define the part of the battle in which it can be most effectually used. Then, when he has so far decided its direction, he will be obliged to leave all details to the cavalry leader, who will choose his own time and opportunity for delivering his blow. The local defensive power conferred by the present arms will be used on both sides. The assailant will endeavour to gain, by employing it at unimportant parts of his line, the advantage of the superiority of force necessary for striking at the decisive point. The defendant will naturally employ it to the full. Both on one side and the other, however, the effort will be to keep strong forces of all arms for the decisive period of the action.

One of the most important questions connected with the combined employment of the three arms is that of the relative power for destructive purposes of artillery and infantry fire. On the one hand, we have the direct evidence given by the French themselves of the fact that at the battle of Wörth it was the overwhelming effect of the massed German artillery that made their position hopeless. We have Marshal Canrobert's evidence, given before the Bazaine Commission, that when the critical position on the right of the French at St. Privat fell, he found it impossible to advance to save the loss of the day, because the Germans met him not with infantry, whom he could attack, but with overwhelming masses of shells which it was impossible to face. We have the Emperor's words in surrendering at Sedan, that the forces to which he surrendered were the German Uhlans penetrating in every direction, so that no movement could be concealed from them, and on the battle-field the terrible fire of the artillery. In all of these, the three critical periods of the great French defeats, the French evidence is distinctly that

it was by their artillery that the Germans won their battles. On the other hand, we have the evidence very distinctly given by General Sheridan, an independent and able critic, that in going over the battle-fields immediately after they had been fought, he found that the material effect of the Prussian artillery had been most insignificant. Further, we have elaborate statistics furnished by the Prussian medical staff, showing that the proportion of losses in the German army, from artillery and infantry fire, were 91 per cent. by infantry to 9 by artillery fire. How are we to reconcile these facts? How far are we to take either or both as an illustration of what will happen in future war? Our own belief is, that both must be taken into account, and both illustrate tendencies that may be modified in future war, but that will not be greatly changed. Some exception may be taken to direct inferences from the German statistics, because in every battle throughout the campaign the German artillery asserted from the first such an overmastering superiority over the French artillery, that the latter had very little opportunity of inflicting loss upon their enemies at all, while the French infantry throughout fought magnificently. This does not, however, affect the direct evidence of General Sheridan as to what he actually saw of a very different thing — the effect of the admirably handled German artillery—the very artillery which, according to the evidence of their enemies, won the battles.

The explanation seems to us to be written large on the detailed history of the battles. When the Prussian artillery at Wörth asserted its mastery over the French guns and mitrailleuses, the latter for the most part withdrew out of its range. When the Prussian artillery was then turned upon the French infantry, these latter abandoned the slopes and the immediate crests of the hills which were

exposed to the fire of the guns, until the Prussian infantry, advancing over the abandoned ground, covered the fire of their own guns. Then the French infantry again met and engaged the Prussians. Similarly at St. Privat, even the "*brave des braves*" of the French army, Marshal Canrobert, stopped the advance of his corps when he found that he had nothing but shells to face. Similarly at Sedan, when the fight resolved itself into an artillery fire directed upon the French, to which they could not reply, the result was an enforced surrender. A similar fact may be observed in a story which has been told by a Frenchman who was engaged in the Le Mans campaign. He declares that on a certain occasion one of the villages was taken and retaken forty times in the course of one day. The number may be exaggerated, but the fact was, that the artillery on both sides had the village completely under their fire at effective range. As soon as the infantry on either side entered it they found it impossible to remain in it or to entrench themselves, seeing that they were exposed to an apparently overwhelming fire to which they could not reply. Thus the enormous moral effect produced by artillery fire, the sense of helplessness under it which comes over men who are exposed to it, tends to greatly diminish its material effect. It may be perfectly true that apparently at the butts the fire of artillery is materially annihilating. But as it is usually impossible for guns to see over the whole of the vast area of ground which is occupied by a modern battle-field, any distant fire, however destructive, tends rather to drive men out of the positions in which they are than to cause them to remain where they are to be slaughtered. Thus the victory-winning power of artillery is essentially connected with its moral rather than with its material effect; nor is there any reason to suppose that this fact will be altered by the

enormous improvement which has taken place since 1870 in the destructive power of the artillery weapon. The sights with which the gun is now furnished, and the great improvement both in the shell and the gun itself which has taken place since 1870 will cause, wherever artillery is employed, an immediate destruction far greater than formerly. But the guns will be able to be employed, and will at first be employed at greater ranges. The improvement in the infantry arm will tend also to increase the relative advantage to artillery in being employed chiefly at those ranges in which it still has enormous superiority over infantry. At those ranges it will simply cause whatever is opposed to it to clear out for the time being of the positions exposed to its fire. Because of the enhanced material effect, this will happen more rapidly than formerly. Hence in summing up at the end of the day, after General Sheridan's manner, the actual losses inflicted by the artillery, these will in all probability continue to remain small.

It does not at all follow, however, that artillery will be able by itself to cause the abandonment of a position. On the contrary, the experiences of the 1870 campaign showed a system of mutual co-operation between the two arms which was an essentially new tactical feature. The artillery made certain positions untenable by the French which would have been practically unapproachable by the German infantry as long as the French infantry and guns kept in their original stations. The infantry, thus enabled to advance, prepared the way for a fresh advance of artillery, which, again, gave the guns the power to bring fresh support to the infantry. Thus the *lisiere* of woods and the crests of hills are both peculiarly exposed to artillery fire from a distance. It is precisely these parts of woods and the crests of hills which give to infantry holding them the most perfect command over the ground in front. If the artillery

can open the entrance into the wood to infantry by driving back the defender into the body of the wood the assailants then fight on even terms. The infantry, as happened at Wörth, may then, by clearing the defenders out of the wood, enable the artillery to advance to some position which, as long as the wood was held, would have been impossible for them. Thus the movement of a modern battle in these features of combined action implies an intelligent co-operation of both arms, or rather of all three, the cavalry being ready to take advantage of any of those opportunities which we have suggested as almost certain to occur for rendering success decisive. This co-operation is very different from the kind of rigid movement together of artillery and infantry which was characteristic of the old tactics. It implies in the officers of each arm an understanding of the power and duties of both the others as well as of their own. To speak of the effect of artillery as essentially moral rather than material is no disparagement of the victory-winning qualities of the arm. To produce a moral effect is the aim of all strategy and tactics and of each arm. It is a result of the appalling effect produced by shells when they do strike that artillery rather than any other arm tends immediately to produce a moral effect out of all proportion to the actual destruction which it causes. We have no sympathy with those artillery officers who are for ever anxious to press upon their brother officers of the other parts of the service the terrors of their arm, and to assure them that it is a delusion to speak of the effect of artillery as chiefly moral. It is a familiar tactical truism, that the great duty of artillery in action is to "prepare" the way for the assault on a position. Now notoriously this preparation does not consist chiefly in the mere material effect which is produced on the defenders, but in shattering their resisting energy. Quite sufficient material effect will

be produced by the enemy's artillery to make it seem as if nothing could live under such a fire. That is the common impression produced on young soldiers by their first experience of any fighting. They invariably imagine that the losses are more serious than they really are. It is right and well that all men in an army that is to do its duty should realise that such appearances are far worse than the reality, and in particular it is well that cavalry and infantry officers and men should realise that no army was ever yet destroyed by artillery fire, but that many armies have been lost because the effect of artillery fire seemed so much worse than it really was that no moral strength was left in them to resist the blows of an assailing infantry.

It cannot be right for artillery officers, in their zeal for their own arm, to induce an impression which is injurious to the service of their country. It is recorded by "The Rifleman in the Peninsula" that, despite all the experiences of war through which he had gone, the destruction produced by the French artillery at Waterloo was so appalling that he asked himself whether a battle had ever taken place in which everybody was killed. Yet at Waterloo only 1759 in all, out of 43,133 British troops, were actually killed. The number is large enough, but the impression on so experienced a soldier, who, like the rest, was nevertheless quietly doing his duty, suggests how largely losses are magnified in the minds of men whilst fighting is going on. Even by him the losses were multiplied twenty-four times. It is safe, therefore, to warn all soldiers exposed to artillery fire that they may divide by twenty the material loss which they imagine that the army is sustaining. They are much more likely to save the lives of themselves and their own men if they realise that fact.

Circumstances tending to change the character of the larger tactics.

So far as Continental warfare is concerned, the enormous development of modern armies makes it very uncertain how far elaborate strokes of tactical skill can ever again be delivered in the way they were by Napoleon,—for instance, at Austerlitz and Dresden. The experience of recent wars supplies us, at all events, with nothing of the kind. The enormous masses and the enormous extent of ground to be covered almost force a general into the simplest possible arrangements on the larger scale, leaving it to his subordinates to work out the development with such local skill as the circumstances permit. Nevertheless, it would be rash to say that, as incidents of a great campaign, many battles may not be fought, the effect of which on the conduct of the general operations will be very decisive, where comparatively small numbers are engaged. For the conduct of these at least there are many lessons to be gathered from the tactical experiences of earlier wars.

Choice of position.

In the taking up of positions it may be assumed generally that the conditions to be sought are freedom for manœuvre, free scope for fire both of artillery and infantry, and, as a rule, for that end gentle glacis slopes like those of St. Privat and Gravelotte, rather than precipitous heights like that of the Red Hill at Spicheren. There is nothing as to which war experience and popular assumptions differ more than as to the relative strength of different positions. As a rule, steep heights give a great deal of cover from fire. Their lower slopes can only be seen from the edge, and that edge cannot be held because it is completely exposed to the enemy's fire from many points below. It is better to have a difficult climb than to be shot by a bullet. It has constantly happened that positions have fallen because the defenders have trusted to physical difficulties of access rather than to the effect of ground upon the use of arms for their defence. Whatever tends

to oblige an enemy to debouch on a narrow front against a wide front of fire is most valuable to the defence. It is upon considerations such as these of the use of arms that the strength of a position must be determined. Similarly, whatever tends to facilitate communication between one part and another of your own troops, and to cause an enemy to separate his, adds greatly to the strength of your position. The element of time also has here, as in the province of strategy, to be always taken into account. Where ground tends to make movements slow and difficult, there it will be safe to economise men by employing small forces, in order to gain time for decisive blows in other directions. Whatever in an enemy's rear will prevent his safe retreat, and therefore either locally or throughout a position will make successful attack decisive, is greatly in favour of the army which, whether at first on the defensive or offensive, can attack an enemy in such a position. The application of these principles is almost infinite in its variety. It is impossible here to do more than indicate their general character.

Provision against outflanking movements.

The proposition has been advanced that it would be best to meet the efforts of an assailant to outflank a position by employing detached bodies to manœuvre outside the position, so that when an assailant has committed himself to an outflanking movement, and has moved up his enveloping troops, the detached body could fall upon these unexpectedly from their rear. Twice during the 1870 campaign the Germans designed a movement of this kind. In neither case was there an opportunity of putting it to the test. Such a movement successfully executed could hardly fail to have great results. On the other hand, a well-handled cavalry, searching all the country round prior to an action, might not improbably discover the isolated corps placed for the purpose, and in that case it ought not to be difficult

for the assailant to keep it apart from the main army and to destroy it.

Employment of detached force in enemy's rear.

A proposal of a somewhat kindred kind, but involving a different principle, was made by Sir E. Hamley as a deduction from the 1870 campaign, and was applied in practice by the Russians in Asia in 1877. He suggested that the defensive strength of comparatively small bodies was now so great that a general would be tempted to detach, or to connect with his main body only by a telegraphic wire, a body of troops who, passing round an enemy to be attacked, should take up a strong position in his rear, and should thus become the anvil on which the main assailing army should act as hammer, grinding the enemy between them to powder. This was actually done by the Russians, who in October 1877 destroyed Moukhtar Pasha's army by this very means.

Dangers of such attempts.

Both these forms of operation—the detached force to the flank and the detached force to the rear—partake of the nature of the attempt of Napoleon to destroy the allied armies, after the battle of Dresden in 1813, by previously detaching Vandamme to intercept their retreat. As a matter of fact, that manœuvre was one of the most disastrous that Napoleon ever attempted, but the disaster was probably due to a failure of Napoleon's own wonted activity arising from illness. The telegraph might then have made a very great difference in the result of the operation. In any case, these suggestions indicate possibilties of action, due to the present condition of arms and of science, which may have much wider application in the hands of skilful commanders. Everything will depend on their execution, and on the skill with which they are met. It may at least be asserted that, with the possibilities of such manœuvres being employed against him, it will ordinarily be extremely rash for a general to commit himself to the actual turning

movement by which he wheels up a portion of his army to attack an exposed flank, without having searched the ground with his cavalry far beyond the point which he proposes to assail. This was actually done by the German cavalry under express orders from headquarters, prior to and during the great turning movement at the battle of Gravelotte.

Marches.—The principles regulating the marches of armies which precede battles are determined by the conditions of a modern battle itself. As a rule nowadays the cavalry of an army will be certainly pushed far forward in advance of the main body. Therefore, with the exception of small parties of horsemen employed as orderlies, for keeping up the connection between one part of an army and another, and to aid the infantry in the immediate work of local security, the marching body will in ordinary country consist of artillery and infantry. The tendency for every action to begin by artillery fire continually leads more and more to the pushing forward of that arm to the front of the column, only sufficient infantry being placed before it on the road to give protection in case of sudden attack, and to furnish the necessary troops for the defence of the guns at the beginning of an action. The exact order of march will therefore necessarily vary with the character of the country through which the army moves. In very mountainous districts, in which collision with an enemy may occur at any moment, it may be necessary to push forward infantry instead of cavalry. In all cases where mountain defiles have to be passed, detached infantry must gain possession of the heights before the main body enters the defile. Marches.

Since the great object of all marches is to deliver the army in fighting order on the battle-field, it is necessary that the force should not be dispersed too widely on the

march, but it is quite as necessary with large bodies of troops that the march should not be made upon too few roads. An army corps with its attendant waggons occupies in depth about 25 miles on a single road. As under most circumstances a day's march is about 13 or 14 miles, it is clear that, if an army corps were moving in the ordinary road formation on a single road, the rear of the column would scarcely be able to arrive on the same day that the head of the column was first involved in action. Nor is it always possible to place the whole of the fighting force in front and to leave the whole mass of waggons in rear. Ambulances and surgeons at least, as well as ammunition columns, are required at the very moment of battle. Therefore it is advisable to employ as many roads as possible that are within convenient reach of one another. The difference between the lengths of march that have been done by troops under favourable and unfavourable conditions is so great that it is impossible to fix any specific length as the march that can under all circumstances be relied on. Good spirits, good roads, high training, and favourable weather on the one hand, and depression, deep mud, storms, and want of marching condition on the other, are elements that must be taken into account in all such matters. Of the difficulties which a large number of troops marching on a single road encounter a striking illustration is afforded by an incident of the 1866 campaign. According to the Austrian official account, the men marched eight abreast in order to diminish the length of road occupied. Yet, though this unusually wide marching front was taken up by the infantry, and corresponding formations were as far as possible taken by the other arms, the length of the longest column, according to Von der Goltz, was, when actually on the road, from front to rear 67½ miles in length. In this case about three corps marched together. Hence it is always desirable

when possible to allow one road at least to each division. Another striking illustration both of the size of modern armies and of the length occupied by troops on a road is given by Von der Goltz. He calculates that, if the present German army were placed on one road, it would reach from Mainz to the Russian frontier, the whole distance being densely packed with men, guns, and waggons. Again, he shows that either the present French or German army extended in battle array would occupy the entire length of the common frontier of the countries.

Advanced and rear guards.

Advanced and Rear Guards.—The questions involved in the proper use and employment of advanced and rear guards would occupy more space than we can possibly afford for them. In general terms it may be said that, with both advanced and rear guards, artillery (perhaps with machine and quick-firing guns), cavalry, and mounted infantry will play the principal parts. It is tolerably certain, though opinion is much divided on the subject, that the enormous advanced guards employed by the Germans during the 1870 campaign, in which the advanced guard of an army corps sometimes consisted of about half the whole force, would be for most campaigns a mistake. The tendency of very large advanced guards is, as that campaign showed, to bring on actions prematurely. Artillery or mounted corps can be easily drawn out of a premature action. Infantry cannot be so withdrawn. If the advanced guard is large enough to give time to the marching body to form upon suitable ground before it is attacked, it possesses all the strength that is necessary.

The task of a rear guard retiring before a victorious enemy, and covering the retreat of a beaten army, is one of the most delicate of operations. It depends for its proper execution on the full employment of those means for gaining time by forcing an enemy to deploy on un-

favourable ground which have been described under the general heading.

Outposts. *Outposts.*—The subject of outposts is also one which, for its full explanation, would require a volume to itself. The general principle on which their use is based is, that a slender cordon of men shall so surround an army when at rest that no enemy can approach its quarters unobserved, and that this cordon shall be supported by piquets from which the actual sentries for the cordon are taken, and these again by stronger but less numerous bodies, serving to connect together the different parts, so that, if the enemy attempts to drive in the outposts at any point, he meets with a continually increasing resistance. In this broad indication of the method, the principle is equally applicable to cavalry and to infantry outposts. In general, however, the security of a modern army, when not in actual contact with an enemy preparatory to battle, depends chiefly on the early information gained by cavalry pushed far out beyond the rest of the army. The cavalry will be at a distance of at least one or two days' march in advance and on the flanks scouring the country in all directions.

It is practically certain that during the earlier stages of a campaign the collisions that will occur will be between bodies of cavalry pushed forward from both sides, supported by horse artillery and by such infantry as can be rapidly transported to the front. The circumstances of the collision of the main armies must depend in the first instance upon what happens in these encounters, in which cavalry will be the most important arm. Both sides will endeavour to use their cavalry to obtain all the information they can and to prevent the enemy from obtaining information of their own movements. At the same time, in the case of two great neighbouring powers like

France and Germany, it is probable that attempts will be made by the cavalry on both sides to interfere with the mobilisation of the armies across the frontier. These efforts promise to result in contests on a scale and of a kind such as we have never yet seen, and of the nature of which it is difficult to judge from any past experience of war. It seems certain, however, that the body which will gain victory in these encounters will be the most highly trained and numerous cavalry, supported by its sister arm the horse artillery. But the value of a body of mounted infantry, and perhaps a strong force of cyclists, pushed forward to support the cavalry, can hardly be doubted when it is remembered how often defiles will have to be seized, bridges held, and important stations permanently secured. No doubt, when such infantry is not available, cavalry will at times have to be employed on foot for these purposes. So long as such employment is looked on as exceptional and a necessity to be regretted, it need do no harm. In any case no rules must prevent the securing of the actual object for the time being.

Reconnaissance and intelligence.

Reconnaissance and Intelligence.—The vital necessity of obtaining all possible information of what an enemy is doing makes the reconnaissances continually carried out by cavalry all round an army, and the occasional special reconnaissances conducted by single officers and small parties, or strong bodies employed for the purpose, some of the most important operations of war. It is, however, difficult in brief space to lay down rules for their guidance, because the essence of the value of such work depends on officers being trained in all parts of the art of war so as to know what to look for and what to report. The principles of such reconnaissance are determined by the general principles of both strategy and tactics, and are not in themselves independent. Nevertheless, it is very important

that it should be realised, by men who are sending in reports from some one point of a large circle, that information in itself apparently unimportant may be of the greatest value when it is collated with other facts either already known or simultaneously gathered from other quarters. Thus, for instance, a newspaper advertisement, or a reference to a particular man or officer as not being with his regiment, may give negative evidence of the position of that regiment which may become of great importance. The sifting, therefore, of information should be chiefly left to the department at headquarters which has charge of that work. Spies and deserters will supply evidence the value of which usually depends on the power of the department to check their assertions by a number of minute facts already known. Any information about the enemy or the country which may assist to that end should be carefully gathered and reported. Numerous forms and rules have been drawn up to supply hints as to the kind of information about roads, rivers, railways, villages, &c., which should be gathered. Lord Wolseley's "Pocket-Book" and Colonel Harrison's "Handbook" are the best for these purposes.

MILITARY LITERATURE.

THE subject of military literature is a very extensive one. It occupies a field almost unknown to most English readers. My attention has been lately drawn to a rather curious piece of evidence showing that the very existence of most of the books which constitute it is unknown even to many officers of our army.

A discussion which recently took place in one of those useful little regimental journals which are published by some corps in India showed this fact plainly enough. An appeal was made, as quite decisive, to Mr. J. R. Green's "History of the English People" on a matter connected with the events of the Waterloo campaign. Now, no one would have been more astonished than Mr. Green to hear of an appeal to him on any subject connected with the army. His book starts with a repudiation of all interest in such matters. It is not surprising, therefore, that the officer who quoted Mr. Green as an authority should have been hopelessly wrong as to his facts. There is perhaps no campaign in relation to which the literature of the chief European countries is so full of valuable material as the Waterloo campaign. There is none as to which one might have hoped that English officers would have more cared thoroughly to inform themselves. I cannot help hoping, therefore, that it may not be a superfluous task if I attempt to draw attention to a class of books many of which are at least as graphic and interesting as any novel, all of which will tend to impart to soldiers some knowledge of their own proper work, and to those who are not soldiers

some notion of what army work is. In order, however, to give to the personal narratives and full detail which are supplied in many of these their proper value it is necessary to have some means of knowing how to group them so as to see what is the general drift of the conclusions to which they lead us. There is a little book published some years ago by Colonel von Gizycki, commandant of the 18th Field Artillery Regiment of the German army, "Ueber kriegsgeschichtliche Studien als Mittel zur Förderung der Kriegstüchtigkeit des Offiziers"—"On the Study of Military History as a means of increasing the Military Capacity of an Officer." It contains in so short a space the main points to which I am anxious to draw attention that I should advise any one who is proposing to study military literature to read carefully the few pages of this little pamphlet.

Nothing is more common nowadays in the English army than to hear men who have not been employed in any of our recent expeditions almost congratulating themselves on the fact that they have not suffered from what they consider that somewhat dangerous preparation for war on a large scale. They quote the familiar fact that in certain respects the French army in 1870 suffered from its Algerian campaign. They deduce the conclusion that those officers who have gained their practical knowledge of the higher commands of troops in Indian or African warfare are likely to be positively inferior to themselves, whose knowledge is derived from the drill-ground alone. It is as well, therefore, to point out that it is almost invariably and always precisely in proportion to their war experience, and to the capacity which they have shown for handling troops in the field in our own small wars, that officers of the English army advocate a careful study of war on a larger scale, just as I have shown that it is the most war-tried soldiers of all armies who insist on it.

Moreover, to those who have actually studied the circumstances of the 1870 campaign it is notorious that the sense in which the French army suffered from its Algerian

campaign was this: that great part of the junior officers of the army, and more especially the cavalry, had acquired from the habits of savage warfare a certain carelessness, for which they were severely punished by the admirably disciplined, careful, and vigilant German army. It is not true of the 1870 campaign that the habits of command which most potently determined the conduct of the French generals in that war were derived from Algeria. Almost all the generals had commanded in the European campaigns of 1854 and 1859. The most disastrous management of the early part of the war was due to the Emperor Napoleon III. himself, and entirely unaffected by any Algerian experience. The true deduction, therefore, from the campaign of 1870 in this respect would appear to be, that there is a certain carelessness in regard to many of the minor duties of a campaign, such as the strict guardianship of posts on lines of communication, outpost duties generally, and especially of that work which falls upon the cavalry which is apt to be engendered by a series of small wars.

It would therefore seem that the only mode in which this can be corrected in an army like ours, which is constantly liable to be employed in minor expeditions, is a careful study of those Continental wars, which are fortunately much more rare than the other kind. Seeing that our frontiers are practically now conterminous with those of a great European power, it would seem to be especially the interest and the duty of English officers to make themselves acquainted with the nature of European warfare in order that they may guard against those very dangers of which the believers in parade drill and home service would warn us.

It is difficult to understand how any carrying out of drills on a parade-ground can prepare an army for avoiding those defects which were conspicuously aggravated in the French army by Algerian war-training. This special illustration of the value of the real study of military literature as enlarging the field of military experience presents, however, only one aspect of the question, though

perhaps the one which ought to weigh most with young officers of our own army. As Gizycki has admirably pointed out, no personal acquaintance with even Continental warfare can compensate for that knowledge of the large experience of the past which may be derived from a careful study of what has happened to others. As he puts it, "Every man's experience is confined to the narrow circle of his own activity, which, as a rule, is exercised in a different sphere in every new war in which he takes part." "Even within the same limited sphere, personal experiences of war differ entirely one from another: one man has only been present at successful actions; another only at a defeat; a third has never been under fire at all. One was in the advance guard which was struggling with all its forces to win the day; another only arrived at the battle-field when the enemy's strength was almost broken."

It is quite necessary for the general who would conduct his army aright to realise what the experience of colonels, captains, subalterns, and privates in the actual stress of fight really is. It is quite necessary for the subordinate officers who would, under the conditions of modern war, desire to contribute to the success of their armies to know something of the experience of generals, and of the relation of their own part in action to the larger fields of war. Yet this knowledge can only be learnt from the reports of those who have been engaged in fighting.

Those reports can only be embodied in books. The books which do embody them constitute that great branch of military literature with which I am here mainly concerned.

There is something almost comic in the attitude of mind in regard to this subject of half the English soldiers and more than half the civilians one meets. If a distinguished soldier like Sir Redvers Buller goes down to Aldershot and describes certain war experiences of his own, they are delighted, interested, and absorbed by what he tells them. They declare at once that these are "worth all the theory in the world!" Now, what I want to ask such men is

"Would those experiences of Sir Redvers Buller have lost their value if they had been recorded in a printed book? Because if not, this horrible thing which you call 'theory' is simply the same thing which so much interests you in the other shape."

For the reasons I have quoted from Gizycki, no man's personal experiences can be so valuable as the compared and collated experiences of many men. But the one purpose I have in this attempt to introduce you to the study of military literature is, to bring you into contact with as many of these personal experiences as possible. I know of no theory that is of any value except that which consists in these collated experiences; and the more nearly you can come in contact with the actual experiences of living men, the more perfectly will you study what I mean by military history and by military literature.

The reason for this strange dread of trying to find the words of living men under the cover of a book is a very easy one to explain. It is due simply to the impressions of civil life, and more especially to the theories of ladies and the talk of society. Neither English society nor the ladies know anything of the words and works of great soldiers at all, and they are delightfully indifferent to the fact that to a man all great soldiers are against their theories. They have a notion of war which was happily represented by a certain artist shortly after the Ashantee campaign. He, in carrying out the instructions of an able soldier for the illustration of the battles, first of all represented the officers as using their pistols side by side with the men's rifles. When told that that was not the duty of officers, and that most of the officers had nothing but walking-sticks in their hands, he represented the officers as thumping Ashantees on the head with their sticks. Of an initial conception of what organisation is, of the kind of moral and mental task that has to be dealt with by men engaged in directing great bodies of men in modern fight, the British public had, up to the time of the inception of the Volunteer movement, less shadow of a notion than they

had of Chaldee. The great mass of public opinion in England is still in this condition. It is under the impressions derived from it that English officers enter the army; the pressure of it is continually acting on them. Hence it is not too much to say, that all effort to make officers aware of the field of interest which lies open to them in their own profession encounters, and will to the end of time encounter, difficulties in England which it encounters in no other country of the world.

It does not, however, follow from my saying, that the war experiences of soldiers constitute the chief branch of military literature, that everything that is said by a man who was present at some battle, say at Waterloo, represents the entire truth in relation to those facts which he reports. Nothing is more common than to hear men say, with absolute authority and dogmatism, "I was there, and therefore I know." From my own experience and that of others, I should say that the presumption is, whenever a man makes a statement of that kind, that he is wrong as to his facts. The mere statement that his presence on a great battle-field enables him to report correctly what took place at different parts of it represents an ignorance so complete, alike of war, of the nature and value of evidence, and of what knowledge is, that he may presumptively be set aside as a bad witness.

As a general rule, the difficulty is to distinguish between the really valuable evidence which is given by men who confine themselves to speaking of that which they have actually seen, and those who extend their report to what they have imagined as taking place far beyond their view.

To quote again from Gizycki:—"A battle is a drama in which each actor plays the part of a man struggling with fate, risking his life and limb, fighting for the life to which he is tied by a thousand bonds,—a drama in which in each an inward process goes on, a struggle to overcome the strongest of human impulses—that of self-preservation.

"All this occurs amid bodily exertions, during a per-

petual encounter with the unexpected, and in a region of uncertainty, where at every step all kinds of difficulties have to be overcome. Hence, every act—and every act is one of responsibility—is performed under the most trying circumstances. Moreover, the ground on which he fought he probably never saw before, and while he was passing it his whole attention was concentrated on the enemy, so that many things escaped his notice to which his attention was not directly called.

"The names of the places through which he passed were probably unknown to him. As he had not his watch in hand, he will not know afterwards the hour at which he fought.

"Under such circumstances time has a quite abnormal value, in some cases minutes appearing like hours, and in others hours like minutes."

When he sits down to write his story or tells it afterwards, "the consciousness of the danger he has passed makes him exaggerate what he has done; the desire to bring his regiment and himself into prominence makes him largely exaggerate. The consciousness of the mistakes he has made causes him to pass over in silence, and even to misrepresent, many things." His ignorance of all that has happened beyond his own vision makes him suppose that others have not been contributing their proper share to the common effort. Hence it becomes necessary, in order to arrive at truth, to compare many different reports, and so to eliminate as far as possible the sources of error.

Those military histories in which this has been most perfectly done are those which are most valuable for the study of facts. Nevertheless, even in the best of these there are disturbing elements which interfere with a completely accurate statement of what has happened, even if the truth has been completely ascertained.

To quote again:—"At one point" the compiler "does not like to represent the bare truth, because A or B would be compromised by it; at another, he fancies some superior officer has made a mistake, and he hesitates to describe this as it presents itself to him, or perhaps the incident

affects some otherwise quite honourable character whom he loves and respects, one whose repute he would not willingly diminish. Sometimes he is anxious to bring to light to the best of his ability a brilliant service, and this leads him to use exaggerated expressions."

I think it is fair to say, as Gizycki does, of the official history of the 1870 campaign, that it is written "with the finest tact so far as the criticisms of persons is concerned, while the historical truth, so far as it can be ascertained, is yet always" substantially "there."

Hence, even in the best military histories, it is always necessary to read between the lines. Therefore, in my judgment, in the study of almost all campaigns it is advisable to compare as many accounts as possible, written from different points of view. When we once know from any fair general history what the relative positions of different actors were at any period of a campaign or battle, it becomes relatively easy to realise for what part of the narrative it is safest to trust to particular men.

For instance, in the Waterloo campaign, of which I have already spoken, we have accounts given us by Grouchy and Pajol of what they saw of the campaign. Both of them were French leaders, Grouchy of the right wing of the French army, Pajol of a certain portion of the French cavalry. Their action has been sufficiently criticised by others to prevent our receiving their evidence as complete or conclusive. But there are certain parts of the story which they can describe for us in a way which no one else can. Similarly we have lives of Gneisenau and of Blucher, the Prussian leaders, which, for certain parts of the campaign, supply invaluable evidence. We have a great body of evidence of this kind connected with the campaign. The Duke of Wellington himself, who greatly assisted Napier in drawing up the "History of the Peninsular War," refused to assist any one in compiling a history of the Waterloo campaign. The reasons for this are very obvious to any one who knows the facts. His own despatches are invaluable material, but would certainly

lead any one, who trusted to them alone, to a false conception both of the campaign and the battle.

Napoleon wrote much on the campaign. It is needless to say that anything that comes from his hand on the principles and practice of war is of enormous value to a military student. But he certainly did not try to tell the truth about the Waterloo campaign. He tried simply to conceal miscalculations which he had certainly made, and to throw upon others blame which was not deserved by them. The misstatements into which this purpose led him have given opportunity to his many enemies both in France and out of it for a very ample revenge. A whole series of French writers, of whom Charras and Quinet are the most remarkable, have devoted themselves to a most exhaustive examination of facts based upon original documents in the archives of the French War Office, and upon a careful study of maps and of the ground. They have succeeded in demonstrating the inaccuracy of certain statements made by Napoleon and by many of his admirers. Nevertheless, these critics are by themselves anything but safe guides for one who desires to gain such lessons from the past as may be useful for the future. They continually—and it is a trick of which all critics are apt to be guilty—write as though the leaders on both sides, Napoleon and Wellington, ought to have acted as if they were in full possession of the information which we now have. They further continually apply maxims to the conduct of great leaders which are certainly not sound. They complain that Wellington or Napoleon did not do for themselves what it was certainly their duty rather to have made others do. Their partisan hostility towards Napoleon himself continually makes them ignore the just grounds which made Napoleon act upon the best evidence that there was before him, while they do not draw attention to the circumstances which made that evidence in some cases deceptive.

In addition to this mass of varied writing, and to several good collections of facts, such as Siborne for the English army, Von Ollech for the Prussian, and Van Loben Sels for the

Dutch, which, when properly compared, bring out with sufficient clearness the facts as they actually occurred, we have especially valuable military criticism as to the motives which determined the actions of leaders and subordinates from able soldiers who were themselves present during the campaign. Of these, the most notable are General Sir J. Shaw Kennedy, Clausewitz, and Müffling, the Prussian officer who was present as Blucher's representative at Wellington's headquarters. Though this statement by no means covers more than a fraction of the books that have been written on the Waterloo campaign, it will be sufficient to show that the materials for what we know as military history are something rather different from Mr. Green's "Short History of the English People," and from anything to which Mr. Green found it necessary to refer. Incidentally it may suggest that a good military library and some guidance in the choice of books is of no small advantage to the man who would really make a thorough study of even a single campaign of the past. Of course it is exceedingly unlikely that, in relation to many campaigns, any large number of officers will be able to make for themselves an exhaustive study of so much material. It may be said at once, however, that the Waterloo campaign, valuable as I think it is as a subject of study where ample opportunities and materials exist, and where some guidance through its labyrinth can be supplied, presents unusual difficulties to private study. The greater number of Napoleon's campaigns, and certainly all that is now of value in the campaigns of Frederick, can be mastered, not without considerable labour and considerable collation of materials, but with much less of this, though also with much less perfect knowledge of detail, than is possible in regard to the Waterloo campaign.

In all such study it is essential for a soldier at all events to keep before him the fact that the object is not merely, as Gizycki puts it, "to acquire information concerning operations, battles, skirmishes, and charges, or indeed any mere information at all," but to improve his judgment as to

what ought to be done under the varied conditions of actual war; "knowledge being only of practical value in so far as it acquaints us with what we have to expect in war, and in so far as this acquaintance makes it easier for us to act in war." And to this end, in the study of military history, it is necessary in each separate case first to ascertain accurately what the facts really were; secondly, to endeavour to ascertain what the causes were that led to the facts; and thirdly, to endeavour to draw sound conclusions for the future from the sequence of the facts upon the causes.

I do not propose to attempt here to supply guidance as to the special books required for the detailed study of the campaigns of Napoleon. Of most of them, either Jomini's "Vie Politique et Militaire de Napoleon" or Sir Edward Hamley's "Operations of War" will furnish a tolerable sketch. But it must be emphatically asserted that neither of these works either is or professes to be a substitute for the thorough study of the campaigns themselves. They are guides to intelligent study. They do not fulfil the purpose which Gizycki so well defines as the one for which military history is of value to the soldier. They do not fulfil the purpose which Napoleon, Wellington, Napier, and whatever other great soldiers have spoken on the subject, have in view when they speak of the study of military history as the necessary training for a leader of men. For each of the campaigns of Napoleon there are works that should be read with these. By far the most interesting, as well as the most valuable, form of any such study is to work from a well-laid framework, and then to compare as many different views as possible. The man who has made a really thorough study in this way of any one campaign will have a guidance as to the sense in which, and extent to which, he may subsequently trust to summary statements much safer than can be given him by any other means. The complete publication of the entire correspondence of Napoleon in the great edition produced under the authority of Napoleon III. furnishes invaluable material for all such work.

A work published in 1885—"Napoleon als Feldherr," by Count Yorck von Wartenburg of the German "general-stab"—has the great advantage of having been written subsequent to the publication of the Napoleon correspondence. It gives frequent references to the authorities on the different campaigns. If this be read in conjunction with Alison's History and Thiers' great work on the Consulate and Empire, and the books referred to in each are properly examined, a reader will have a clue which, properly followed up, will lead him to most of the authorities of value on any campaign of Napoleon's which he may wish to study. More modern literature is of such extent that I must not venture upon a more complete statement here. In speaking of guides to study, I must not omit to mention the most profound of military writers, Clausewitz, of whom modern Germans still maintain that he has left little that needs to be changed under present conditions of war. His book on the theory of war is hard reading but profoundly thought out. His several histories are among the most valuable military studies that we have.

As a specimen of the method of study, I propose to take Waterloo as a convenient instance.

I think I should advise any soldier who had not previously known anything of the campaign to read through, in the first instance, Mr. Hooper's "Downfall of the First Napoleon." That will give him a very good general idea of the facts, rather too favourable to Wellington, or at least ignoring the many difficulties raised by the severe criticism to which Wellington's conduct has been exposed by German writers. Hooper, however, does not even touch on many of the most interesting military questions of the campaign. Secondly, as an introduction to the literature rather than to the history of the campaign, I should recommend Chesney's "Waterloo Lectures." Colonel Chesney's account of most of the writers on the campaign is very just and fair. It is not so in regard to M. Thiers, against whom he carries out a personal vendetta which disfigures his book. I may, therefore, recommend the reader, with this warning, to his

comments on those writers whom I do not now name. I should recommend him to take Thiers and Charras in conjunction with Chesney, and rigidly adhere to the excellent maxim, "Always verify references."

Siborne's work should be studied in conjunction with these. Müffling's two volumes, Clausewitz, the parts of the lives of Blucher and Gneisenau which bear on the campaign may then be read with advantage. As soon, however, as the reader becomes aware of the many interesting questions involved in the real study of Waterloo, I should recommend him to turn at each point to the best evidence that the case admits of.

For instance, if he wants to realise what Wellington actually did in relation to the early movements of his troops, I should advise him to put out on a good map the positions of the troops as given by Siborne with bits of coloured paper and to take from the Wellington Despatches the series of reports sent to the English commander from his different sources of information. We have these now in the most complete form. We are therefore able to judge what the real information was on which Wellington acted. No single historian gives this. It makes all the difference in following the mind of a great captain.

I have already suggested the value of the memoirs of Grouchy and Pajol. Unfortunately the memoirs of both Soult and Ney stopped short of the Waterloo period.

There exist, however, in regard to Ney three works relating to the campaign of Waterloo, none of which are generally accessible in England. One is a pamphlet in defence of Ney, written in 1818 by a M. Gamot, Ney's brother-in-law, "Réfutation en ce qui concerne le Maréchal Ney." Another is by Ney's son, "Documents inédits sur la Campagne de 1815." A third is a work by Colonel Heymès, Ney's aide-de-camp, written soon after the campaign in vindication of Ney. The substance of most of the evidence from them is embodied in the memoirs of Marshal Grouchy, adding greatly to the value of that work.

It is extremely desirable to check Colonel Chesney's

account of the several French marshals and generals by actual reference to their exploits elsewhere. It will be found that Colonel Chesney's attempt to level them up to Napoleon's standard is flagrantly deceptive.

When the facts, and in the main their causes, have been thus ascertained, the suggestions of such men as Müffling, Sir J. Shaw Kennedy, Sir E. Hamley, Major Adams in his "Great Campaigns," and Clausewitz, to whom the Duke himself vouchsafed an answer, may be read with great advantage by any soldier. With these Napoleon's own comments in the St. Helena Mémoirs and Gourgaud may at least be useful to show what the great captain looked upon as the course he would have wished the campaign to take and on what principles he criticised war.

In any case, there is one word of advice that may be offered to any soldier who desires to profit by the study of the campaign, and that is not to follow the example set by Colonel Chesney of looking from a height of lofty superiority upon Napoleon and Wellington as quite little people. They were masters of their art, and the more closely their action is studied the more will their skill appear. It is only when incomplete statements of the reasons of their action are furnished that little men can afford to despise them. Napoleon was not during the Waterloo campaign the man he had been in the past, either physically, mentally, or morally; but for all that, his skill seldom shone more brilliantly than during certain parts of the week which preceded the 18th June 1815.

The interest of this campaign for Englishmen would alone make it worth study. It is one which also in its short space illustrates admirably the views and methods of two at least of the greatest captains of war. It has the further importance, apart from strictly military study, that never in all the history of war did one army devote itself so loyally to another and to the common cause as the Prussian to the English in that campaign; while for not a few Englishmen the history of the campaign of Waterloo is the story of the English fight at the battle of Waterloo; a fight

which, splendid as it was, would never have been undertaken, and could not have been maintained, without that loyal co-operation. It will not be amiss at the present time that that fact should be understood and remembered.

There is hardly anything so important for military history as a good contemporary map. There is hardly any campaign in which it is so important as in that of Waterloo. The best maps we now have are, I suppose, for general purposes, those of Charras or of Von Ollech. The elaborate Belgian map, on a scale of $\frac{1}{160,000}$, is admirable for those general features which have not changed since 1815.

Passing to more recent times, I do not propose to dwell upon either the Crimean campaign or the Franco-Austrian campaign of 1859. Each of them presents some features of interest. Neither of them is, I think, for a military student, so valuable as any one of Napoleon's earlier campaigns, or, for strategical study, as those of Frederick the Great. The 1859 campaign has, however, been the subject of most valuable criticism by Von Moltke and Prince Hohenlohe. I include the chief works upon these campaigns in my list at the end of this essay.

The portentous extent of material available to the searcher after military experience may be estimated by the fact that the Comte de Paris, whose history of the American Civil War extends to six volumes, and is, I think, the most valuable single work on that subject, has calculated that by 1878 twelve thousand separate works had already appeared on the war. The number since then has been steadily increasing. I am rather alarmed by the amount of authority arrayed against me in Europe when I venture to say that I estimate very highly the lessons to be derived by a careful student from the American war. Nevertheless, the more carefully I have studied the battles of the 1870 campaign, the more convinced I have been that the French suffered a great deal from not having adequately realised what the experiences of the American contest had been, and that the German leaders, however much they may have professed to despise them, had taken careful heed of those experiences.

The evidence of at least a close study of the campaigns is to be seen in most German works. For my own part, following the principles which I have advocated throughout, I look upon the series of accounts of the war which have recently been appearing in the *Century* magazine as incomparably the most valuable material we have yet had for the study of the civil war.

A good general history is no doubt valuable to serve as a connecting link between the several parts, and for this there is no better than that of the Comte de Paris. But little more, however, is wanted to make the record supplied by the *Century* series complete than a very slight connecting thread, showing the relation of the several parts of the widely extended struggle to the common result. Within this nothing can be more valuable than what we have in these papers. Officers of all ranks and on both sides supply their evidence. The personal evidence of highly educated privates adds an exceptional feature of great value.

The official records of the war have only become available since the 12,000 works were published. From lack of these data most of the earlier histories were very loose in their statements as to numbers and positions. These are carefully supplied in notes by the editors of these *Century* papers. Maps and plans are inserted at each point, though occasionally it would be a little easier to follow the story if the plans of the actual battle-grounds were brought more into accord with the strategical maps. Sometimes a pretty picture has been given, while that exact correspondence between text and map in point of names which is the one thing valuable for military purposes has not been preserved. On the whole, however, such a valuable collation of varied personal experience has not been made on a similar scale of any other war. The charm of the accounts often lies in their discrepancies. No two men's account of a battle ever can really agree. I incline to think that between the biographies of different leaders on both sides—almost all of which are of interest and value, the Comte de Paris's history, and these records, most that is of interest about the

civil war may be gleaned. I have already referred under "War" to the admirable little study of the Fredericksburg campaign by an English officer, who is now known to be Major Henderson, York and Lancaster Regiment.

The subject of the history of the three campaigns of 1866 may now be dealt with.

Each of them presents under their strategic aspect examples of the greatest interest. Of all of them, the one that I should best like known to the body of our Volunteer officers is that of Western Germany, in which Vogel von Falkenstein first captured the Hanoverian army, and subsequently drove apart the Bavarian corps on one side and the corps of the confederated smaller powers on the other. The disastrous failure of the smaller powers of Germany to make head against the small Prussian army which was employed against them is a forcible lesson of a danger which would attend ourselves if ever the Volunteers are called on to play their part in defensive warfare. Already a cry has been raised that Manchester, Birmingham, Edinburgh, and Exeter must have their own corps to defend them. If there is one lesson of war more certain than another, it is that Manchester, Birmingham, Edinburgh, and Exeter cannot be saved unless the whole available force in the country is employed to defeat the enemy in the field. A study of the literature of the campaign in Western Germany would force home that lesson pretty effectually. I think that perhaps for this special purpose either Colonel Hozier's "Seven Weeks' War" or Sir A. Malet's "Overthrow of the Germanic Confederation" would be as effective as any other histories, and they have the advantage of being much more lively than the official records. For military study, the Prussian official history and the Bavarian official history are the best sources of information. Willisen has published an elaborate critical history of all the three campaigns. There are many of his conclusions which it is possible to dispute, but he is a weighty and thoughtful military writer. The campaign conducted in 1866 in Italy by the Archduke Albrecht against the Italian army is full of valuable instruction. I

give in the list of books the chief authorities. I do not know that any single critical resumé is quite satisfactory, but I think that decidedly the best is that contained in Major Adams's "Great Campaigns." From the fact that his criticisms were only left in the form of notes, the literary finish of the work is not what it would have been had he lived to complete it; but no soldier who reads his remarks on this or any other campaign can fail to gain instruction from them. His knowledge of the Austrian army, in which he had served under Radetsky in 1849, adds greatly to the value of his criticism of both the Italian and Bohemian campaigns. The great campaign in Bohemia in 1866 has been amply described in the Prussian, the Austrian, and the Saxon official histories. Unfortunately, from the fact that Europe, including the Austrian army, which had served side by side with the Prussian in the Danish campaign of 1864, had paid no adequate attention to the performances in that war of the breech-loading rifle, the tactical features of the Bohemian campaign almost entirely absorbed attention, because of the startling successes achieved by the superior arm. Hence it has happened that neither the Austrian or the Prussian official histories supply us with either the admirable descriptions of the country or the almost perfect strategical maps which have been furnished to us for the subsequent campaign of 1870. The plans of the battles, which, from the inequality of armament, have now lost most of their military interest, are excellent. The larger maps of the country leave much to be desired.

From 1866 begins the period of the rise of modern military literature, which has till lately been almost entirely absorbed with questions of tactical interest.

Undoubtedly the work of original genius which was the starting-point of all discussion was the "Tactical Retrospect of the War of 1866," written by Captain May, who had served in command of a company throughout that war. The actual personal experiences of a company officer were brought to bear upon the whole conditions of modern war in a way which threw a light upon military operations that

has not even now lost its value, even though fresh experiences have to a great extent superseded those of Captain May. It is not in every war that a man of his faculty of observation, vigour of description, and power of pen serves in command of a company. The "Tactical Retrospect" was followed by another work from the same pen, "The Prussian Infantry in 1869." The value of this pamphlet was enhanced by the fact that it drew from the then Colonel Schellendorf, recently Prussian Minister of War, a reply which set forth the views of the German Headquarter Staff at that time. The discussion throws a very interesting light upon the views with which the German authorities entered upon the 1870 campaign. To the same intermediate period belongs a work by Captain Laymann of the German army, translated by Captain E. M. Jones, "About Tactics," which, though we have in some respects passed beyond the stage which it represents, still contains matter worth reading. Though the work possesses now little more than an historical interest, it would be impossible to pass by unnoticed the reports on the Prussian army addressed by Baron Stoffel to the Ministry of War from 1866–1870. They record the growth and preparation of the forces which were destined to overthrow France in 1870.

We come now to the works which followed the 1870 campaign.

Among those which preceded the publication of the great Prussian official history, a few continue to be of value on the German side. Among them, the most important are the Duke of Wurtemberg's account of what he himself ascertained as to the Prussian system of attack during the war from his own close observation; Boguslawski's "Tactical Deductions," which gain all their value from their being the record of the personal experiences of a company officer; Hoffbauer's "German Artillery;" "A German General's Thoughts on the War;" Von Scherff's "New Tactics of Infantry." There is also a work written by Major Tellenbach "Upon the art of operating under the enemy's fire with as little loss as possible," translated by

Captain (now Colonel) Robinson, which is still of interest, as dealing with the problem of the vast mass of unaimed fire which has to be passed in the advance of troops into action. Some points recorded by him are not noticed in any other work that I know of. The "Frontal Attack of Infantry," translated by Colonel Newdigate, gives some special incidents which are still of great interest.

Almost all the histories are now superseded by the exhaustive official history of the war. Occasionally points of interest have some light thrown on them by earlier narratives, but the mass of facts is so well collected and collated in the official history, that there is comparatively little in the earlier accounts which is much worthy of study.

On the French side we have nothing of corresponding value. De Failly's account of the operations of the fifth corps; Frossard's account of the proceedings of his own corps; Faidherbe's history of the campaign in the North; the various publications in which Bazaine endeavoured to defend his own action; and, on the whole, the best account on the French side of any of the battles of the war, "Wissembourg Frœschwiller retraite sur Chalons," De Chalus, Paris, 1882; V. D.'s "Guerre de 1870;" Aurelle de Paladine's "La Première Armée de la Loire;" Chanzy's "La Deuxième Armée de la Loire," are all of some interest. None of them represent the kind of history one would like to receive from the French side.

On the whole, the "Procès Bazaine," containing the evidence supplied by almost all the most important survivors of the great battles, contains the most valuable information on the French side that we possess.

For those who do not desire to study the tactics closely, the clearest, most accurate, and best account on a small scale of the war up to Sedan is Mr. Hooper's "Sedan, the Downfall of the Second Empire." Blume, translated by Major E. M. Jones, "The Operations of the German Armies in France from Sedan to the End of the War," supplies the same place for that part of the history. Those who desire to consult all the authorities on any special part of the war

will find much assistance from a catalogue of all the books on the war and the Commune, both French and German, published by H. Le Soudier, 174 Boulevard St. Germain, and composed by Albert Stultz, 1886. It covers 119 pages, with about twenty books on a page.

Though the French have abstained from supplying us with any adequate account of the war from their point of view, there is no country in Europe in which so many valuable papers have appeared since the war, giving not only their own officers' views, but translations and studies from every other army. Colonel Pierron's work, "Les Méthodes de Guerre actuelles et vers la Fin du XIX^{e} Siècle," is a most exhaustive collection of military historical facts. The *Revue Militaire de l'Étranger*, published under the authority of the French War Office, was certainly, till lately, the most valuable of all contemporary military periodicals, and the one to be most recommended to any one who wished to know what is going on in almost any army in the world. Unfortunately political events removed its editor, and the *Revue* seems to have died for any practical purpose since it lost his guidance. I shall, I think, best serve most English readers by referring them to the translation of papers in back numbers of the *Revue*, as the best source for making themselves acquainted with two ranges of national military literature, each of which has a value of its own, the Russian and the Italian.

The Russian military writers, though a certain number of them follow the general lines of the modern school in which Germany leads the way, belong for the most part to a special national type, of which Souaroff is the great hero. A very good sketch of their views and of the influence of Souaroff is to be found in vol. xxxii. of the United Service Institution papers, from the pen of Captain A'Court. I give also a recent biography by Colonel Spalding.

The Italian school has had the peculiar advantage of starting with none of those difficulties of which I have spoken under "War," as hampering with the encrusted traditions of the past the thoughts of most modern armies. Hence their views and methods have for comparison a special interest of their own.

The *Journal des Sciences Militaires* is also of great value. Streffleur's *Oesterrische Militarische Zeitschrift* and the *Rivista Militare Italiana*, all, however, in their several countries represent a class of military literature for which we have nothing corresponding in England. The published volumes of the Proceedings of the United Service Institution and of that of India are our only substitute. In these and in the Proceedings of the Artillery Institution, and those of the School of Military Engineering at Chatham, excellent papers have from time to time appeared.[1]

Lobell's "Jahresberichte über die Veränderungen und Fortschritte im Militärwesen" for each year is the standard work for all changes in the armies of the world from year to year, though necessarily always a year in arrear. Our own Intelligence Department puts forth periodically fresh volumes, giving the "Armed Strength" of the various European countries, which are not only carefully compiled from the best sources, but supply in their lists of authorities valuable suggestions as to the best works of authority.

With the exception of the periodical works named, the rush of military literature which followed the 1870 campaign came for some time to a stop, so far as anything of great value was concerned. The "Conferences" of officers in France and Belgium, however, belonging to very much the same class as the periodical works, have supplied many papers of considerable value.

On the whole, however, it must be said that during all this time the facts were being threshed out and military thought was ripening.

By 1875, the "Rapport au Ministre de la Guerre," prefixed to Part I. of the "Reglement du 12 Juin 1875 sur les Manœuvres de l'Infanterie," summed up in their most complete form the conclusions at which the military thought of Europe had then arrived.

The war of 1877–78 supplied some fresh material, but its value was very much diminished by the imbecility of the higher command of the Russian army in Europe during the

[1] The *United Service Magazine* in its present form has come into existence since this was written.

earlier part of the war, and by the weakness and political intrigues of most of the Turkish commanders. The arrival of Todleben on the scene in Europe, Osman Pasha's defence of Plevna, the vigour of both Loris Melikoff and Moukhtar Pasha in Asia, and the splendid soldierly qualities of Skobeleff and General Gourko made, however, many points in these campaigns very interesting.

The best history of the war as a whole is to be found in "The Russian Army and its Campaigns in Turkey in 1877–1878," by F. V. Greene. It must, however, be said that the account is so wanting in detail that very little tactical experience can be gained from it. There is considerable interest in "La Guerre d'Orient," by an anonymous French writer, who takes the title of "Un Tacticien;" but it is full of errors of fact, having been produced too soon after the war.

For those who read German or Russian, incomparably the most interesting tactical study of the campaign is that by General Kuropatkin, General Skobeleff's Chief of the Staff, translated into German by Major Krahmer. Like most else that is of value, it has been translated into the *Revue Militaire de l'Étranger*, but not, to my knowledge, separately published in French. General Valentine Baker's account of his share of the campaign in 1877–78, supplies us, in the case of the action of Tashkessin, with the best account we have of the most brilliant rearguard action of modern war. A comparison of this with Greene will show clearly what appear to me to be the defects of the latter work. Meantime the various regimental histories of the German regiments during the war of 1870 have been successively published. They supply fresh light on many incidents of the 1870 campaign.

The appointment of General Boulanger to the French War Office introduced a period of fresh activity into French military literature. Several committees were appointed, which introduced changes into the whole system of French tactics. The most important of these are now embodied in the French "Reglement sur l'Instruction du Tir," which

appeared on the 1st March 1888. It, however, should be read in conjunction with the "Reglement sur l'Instruction du Tir" of 1882, of which it is mainly a slightly modified and simplified synopsis. An admirable little study of it, supplying a good account of its main principles, has been published by Major Ledward, commanding the 1st Cadet battalion of the Manchester Regiment.

Meantime in Germany military literature, apart from direct history, had been chiefly taking the form of "studies," in which the attempt has been made practically to convey the lessons of modern war in such a mode as to cultivate the judgment of all ranks. Of these, the earliest and best were General Verdy du Vernois' "Studien über Truppen-Führung," "Studies on the Handling of Troops," all of which have been translated, the infantry part by Colonel Hildyard, under the rather misleading title of "Studies in Troop-Leading," which may convey the impression that it deals only with cavalry detail. Hugo Helvig's "Tactical Examples for the Battalion, the Regiment, and the Brigade," which have been translated, are of the same type, though not from so high an authority. Von Arnim's "Taktische Beispiele," not translated, belongs to the same type. Colonel Gizycki, Commandant of the 18th Field-Artillery Regiment, formerly of the 1st Hanoverian Artillery Regiment, has supplied very valuable studies of the same kind. Two sets of these "Exercises" have now been translated, one by Colonel Rocca, Commandant of the 5th Volunteer Battalion the Manchester Regiment, one by Captain Spenser Wilkinson. These various exercises, which illustrate in the best way the views of the most trained soldiers on the best experience of war, are invaluable to any soldier who now really desires to study his profession.

Prince Kraft zu Hohenlohe Ingelfingen, who immediately before the war of 1870 published a work "On the Employment of Field-Artillery in Combination with the Other Arms," which was translated by Captain (now Lieutenant-Colonel) Clarke, has recently supplied us in a series of letters with his views on all the three arms from the experiences

of 1866, 1870, and 1877; these have been translated by Lieut.-Colonel Walford, R.A. Without disrespect to the other letters, it may, I think, safely be said that the letters on artillery are incomparably the most valuable. All have now been published by Stanford. A series of letters "Gespräche über Reiterie" between the Prince and a cavalry general introduces us to views much in advance of those of the "Letters on Cavalry." The cavalry general represents the school of the anonymous writer[1] on the "Cavalry Division" mentioned below. These views have now received official sanction. The Prince's "Strategical Letters" subsequently published are most valuable. General Von der Golz's "Volk in Waffen" is a most valuable study of the condition of modern armies and of modern warfare. It has been translated both into French and English. The English translation unfortunately is certainly not a good one.

A variety of works on the special service of the cavalry arm require now to be noticed.

The most important of these, notwithstanding that in some respects it is now out of date, is the volume of instruction by General Von Schmidt. It is, however, a book of training rather than of tactics. General Von Verdy du Vernois' "Studies in Troop-Leading: The Cavalry Division," translated from the German by W. H. Harrison, and edited by Colonel Bell, has the value of everything that comes from Von Verdy. Von Verdy's book, in a style then absolutely new, teaches the method of conducting the cavalry division as the eye of the army. Both of these works assume the tactical formations of the German cavalry regulations prior to 1886. As studies of the principles of cavalry tactics they have lost nothing of their value.

A valuable sketch of the training of the German cavalry on the larger scale is given in a paper by the late Major Carmichael, in No. 106 of the United Service Institution Papers, under the title "The Cavalry Tour of Instruction."

Lastly, an anonymous work,[1] "Die Kavallerie Division als Schlaten-Körper," of which a translation into French has

[1] Now known to be by Major Von Hoenig.

appeared in successive numbers of the *Revue de la Cavallerie*, and a translation into English in the papers of the United Service Institution, is a work which requires only to be known to be received with enthusiasm by any cavalry soldier who cares for his arm. A later work by the same writer, "Taktische Directiven für die Formation und Führung der Kavallerie Division," of even greater value, became the basis of the cavalry drill-books of 1886.[1]

The publication of the new German tactical instructions gives official sanction to the long-known views of the ablest German officers, which correspond very closely with those which have already been sanctioned in France. The part of these instructions which deals with matters of principle, and is not merely devoted to specialities of the German drill, has been translated by Captain Sawer and published by Stanford. The publication of our own drill regulations represents a step in advance on anything we had had before. No one looks upon it as more than a tentative move in the right direction.

I shall in my list add one or two books whose titles speak for themselves, and reserve a few that lie rather outside the main line, notably "The Summer Night's Dream."

It has seemed best to follow through the connected sequence of military thought as represented by the successive publications on modern wars. It must, however, be understood that there are very many books on special subjects which lie outside the field with which I have here dealt. The subject of field-fortification was excluded from treatment in the original essay by the arrangements necessary for an Encyclopædia. I have been glad, therefore, to adhere to that method in order to keep the subject here dealt with as simple and distinct as possible. There are, however, many aspects under which field-fortification touches closely on the domain of tactics. Major Clarke's and Colonel C. B. Brackenbury's recently published works deal admirably with this branch of the subject. I propose to add under the head of field-fortification in my list one or two names of books which

[1] It has recently been translated in the *United Service Magazine* by Captain Leverson, R.E., who made the translation of the earlier work.

may be useful for those who are seeking for information on this subject. As, however, the name of General Brialmont will necessarily be among them, I cannot omit to notice here that nothing that comes from the pen of one of the very ablest of living soldiers can safely be ignored, though space forbids me to record all the many valuable works with which he has supplied us. Many of his views are disputed by able soldiers, but every soldier ought to know what his views are. Similarly, the subject which passes under the name of Military Administration, including the questions of the proper employment for military purposes of railways, telegraphs, roads, arrangements for the working organisation and supply of armies in the field, is of vast extent, and has a literature of its own. So also have the subjects of Military Law and of Military Topography. I propose for these to give a few selected works.

Of the number of works connected with the many minor branches of the study of war and armies, I may perhaps give some idea by saying that a catalogue has been recently sent me dealing only with works connected with military telegraphy, torpedoes, and a few similar matters, and that the list, all of modern works, comprises six hundred odd volumes.

Altogether, perhaps, on these subjects external to my immediate purpose I have said enough to show that if the profession of us soldiers is not usually included among the "learned professions," there is yet enough in it for a man to spend a lifetime in learning. We do not claim to belong to a learned profession in any sense which makes it our object to study books rather than men. No books will ever make a man a soldier. No books will do him any service which tend to distract his thoughts from the study of men, from the care and command of men, from sympathy with men, from learning to deal with men, from active life, from practical energy. No books will supply the place of instinctive genius for war. Nevertheless it is true of us as of others, that—

> "The fate of all extremes is such,
> Men may be read as well as books too much.
> To observations which ourselves we make

> We grow more partial for the observer's sake;
> To written knowledge, as another's, less.
> Maxims are drawn from notions, those from guess."

And I must say again that almost invariably the special characteristic of those soldiers who have known most of the past experience of war has been dash and enterprise applied at the right moment. It was Sir Charles Napier, who carried out the campaign of which the Duke of Wellington declared that it was the most brilliant stroke of war that he had "ever heard or read of," who most urged upon young English officers the duty of "reading," and himself read more than any soldier of his day; though for that matter the Duke himself told Sir J. Shaw Kennedy that he had all his life devoted two or three hours a day to military reading. It was Stonewall Jackson, the most brilliant executive soldier of the American war, who marched into camp at the head of the class to which he had been teaching the theory of war up to the moment of fighting. It was Picton—the "fighting Picton"—who was known throughout Wellington's army as the most persistent military student of his day. It was the Napiers, as a family, who never could pass through an action without managing to get themselves hit, who had learnt from their great master, Sir John Moore, to study war as scarcely any men have ever studied it. No; it is not true, as Carlyle supposed, when going to the Horse-Guards, during the years of our lowest military degradation, for a little assistance for his great work on Frederick, and finding nothing there but crass ignorance of war, he declared that "no English soldier since Marlborough had studied his profession." Few men, no doubt, have ever studied war more carefully than Marlborough, but no one who understands the least about the subject can read Sir William Napier's "Peninsular War" without feeling that he is reading the work of a man who knew his own profession as few men know theirs in any branch of life. What is true is that "the sisters, the cousins, and the aunts," and not great soldiers, became the directing spirits of the English army during a long peace. A brainless idiot who could dress nicely, look smart on parade, could carry out formal

drill learnt by rote, and had learnt only to swagger, became the *beau ideal* of a smart soldier when soldiering meant peace-parading. Those who want to persuade our young officers that this is the proper preparation for war find themselves obliged to recur to the lives of some great leaders of whose studies in youth we know nothing. They tell us that Cæsar late in life stepped into the command of armies. One would have thought that the history of the disciple of Marius, the man *par excellence* of whom, as Miles Standish put it of him, it could best be said that "he could *write* and he could fight," who shows in every line of his writings how completely he had mastered the principles of war in his day, was not for their purpose a quite happy illustration. If ever there was a soldier in the military sense learned, that man was Julius Cæsar.

Cromwell appears to be the only other hopeful example they can find. Again the choice is ingeniously made. We have no actual record of Cromwell's studies of any kind during the years which preceded the Civil War. Knowing, as he did, for some years before the war began, that it was clearly coming, he may have followed the views of these wise Mentors, and cautiously avoided all study of the previous experiences of others. During those years before the meeting of the Long Parliament which Cromwell spent quietly on his farm, all Europe was ringing with the exploits of one of the most brilliant of all leaders of war. Some of the best accounts of his mode of fighting, and of his battles which we even now possess, had been published in England. Five hundred Englishmen, almost all of them naturally of Cromwell's religious party, many of them Cromwell's acquaintances at least, had served in the armies of the great "Lion of the North." It may have been the case, of course, that just at the moment when everything was looking in England as if only the sword would decide the issue, Cromwell carefully abstained from interesting himself in the story of those wars of Gustavus Adolphus, of Wallenstein, and of Tilly, with which every one else was absorbed. Neither his letters, or his speeches, or his conduct of

battles look to me as if that were true. I find him at the very first entrance into the war acting on principles which past experience had established, following closely upon just that stage which the art of war had reached under Gustavus, using the very same moral stimulus which Gustavus had made so effective, using the very words on one occasion which Gustavus had used on another, and, as I think, indicating in various ways that he had most carefully studied the past, though he had not had the opportunity of doing any peace-parade work. To me it seems that his case is an illustration of what I believe to be a general truth, that there is a very limited number of men whose "shaping spirit of the imagination" is so powerful that they can learn directly from the experiences of others without themselves having had *any* personal experiences of that which they study. Cromwell would be an admirable example if the object were to show, what would not in itself be true, because few men are like Cromwell, but what has some element of truth in it, that men may gain more from the recorded experiences of others than from any warlike training whatever. When the peace-trained soldiers of Prussia bore down the Austrian veterans, they, weapons apart, owed their success to very much the same causes as enabled Cromwell to prove himself superior to Rupert and Leslie.

Here is a curious passage from one of Cromwell's speeches:—"But this I would commend to your prudence. Not to insist upon any complaint or oversight of any commander-in-chief upon any occasion whatsoever; for as I must acknowledge myself guilty of oversights, so I know that they can rarely be avoided in military affairs," *—almost an express avowal of his having made a study of previous military events. It would take me too far afield to show the same points in regard to his conduct in action. In any case, at best, the argument that, in teeth of the advice of all the great soldiers who have spoken or written on the subject, the mere guess that Cromwell had made no study of war before he engaged in it should induce young officers to ignore

* "Cromwell's Letters and Speeches," vol. i. p. 202.

the study of their profession, is so silly, that I should not have alluded to it, but that I think these points as to Cæsar and Cromwell in relation to military literature have an independent interest of their own, and touch subjects on which much folly is often innocently talked. Such words as I have referred to no doubt appeal to the gallery very successfully. In any case, we have from Monk, the one soldier who served under Cromwell, and was subsequently charged with the peace-training of an army, a work which, as the first product of English military literature since the period from which the creation of our regiments dates, deserves to be mentioned. In it he emphatically asserts the necessity for the actual book-study of warlike experience on almost exactly the same grounds as those set forth by Gizycki in our day.

No doubt the first savage who knocked down his brother savage with a fist did so before any art of self-defence had come into existence. He would, however, have found Tom Sayers a very awkward customer to tackle. The soldier who, because in some distant age some ancient conqueror may have gained his successes by mother-wit alone, dares to risk the lives of men who are intrusted to his charge without making study, for his own education, of the experience of the past, is a criminal more dangerous to his country than any ordinary murderer. So Napoleon hinted to his brother. So Sir C. Napier plainly declared. There are no authorities on the other side but those very women whose lives and honour it is a soldier's sacred duty to defend, just as it is his duty not to be beguiled by their ignorance, which is very pretty and innocent in them, but a disgrace to him.

APPENDIX.

A SELECTED LIST OF BOOKS OF WHICH IT MAY BE USEFUL TO KNOW THE CORRECT TITLES.

In furnishing this list, no one can be more conscious than I am that it ought to provoke criticism. I hardly know, however, whether it will deserve it most as appearing to be too long for the reading of any single officer, and therefore tending to warn off those who are disposed to undertake the serious study of war, or because it omits many valuable works. I can only plead that I have composed it because I am continually applied to for just such information as it contains. I have endeavoured to suggest to those who only want short, clear, and correct summaries on each subject, what are the summaries that will be most useful to them. They need not reproach me because there are others who ask me to tell them more. I have been pretty full in my list of works on the Waterloo campaign, because I have taken it in my text as an illustration of the more complete method of studying a campaign. I have similarly given for the 1866 and 1870 campaigns tolerably sufficient material. In the almost boundless field of the American war and of modern German and French tactical literature, I have endeavoured to supply the names of books, all of which for one purpose or another are at least worth consulting, which most collectors of military libraries would like to know. The works named on the Napoleonic era are only intended as an introduction to that study. The reasons for exclusion and inclusion have been so various, that I could not possibly enter into a full defence of the list.

Though I have, of course, myself decided finally on the selection, I have to thank several friends for the help they have given me. Mr. Spencer Wilkinson, late of the Manchester Volunteers, has a more exhaustive knowledge of modern German military literature than any one else in England of whom I know. His advice and assistance have been invaluable to me both in that and in some of the French selections. Colonel Cooper King has completed my Index for me, and has give me every kind of help in revising the list. I have consulted him and Colonel Everett specially as to the topographical works I have named. Colonel Rothwell has assisted me in choosing the works on Military Law and Administration. The works on fortification that I have given are those which many of my friends as well as I myself think the best, though I, in the first instance, specially asked the advice of Colonel Clayton. In conclusion, I can only plead the extreme difficulty of the task I have attempted, both as an excuse for the long delay which has occurred in my completing it, and for, what I am fully conscious of, its many deficiencies. As a first attempt at anything of the kind, I hope it will fulfil the purpose, to some extent at least, for which I undertook it, that of supplying a want to which my attention is being continually directed from many quarters.

I. Books Relating Chiefly to the Earlier Campaigns of the Napoleonic Era.

Bibliothèque Internationale d'Histoire Militaire.

Précis des Campagnes de Gustave-Adolphe en Allemagne, précédé d'une *Bibliographie Générale de l'Histoire Militaire des Temps Modernes.* Bruxelles. Muquardt. 1887.

I give this book first, because it contains a very complete list of works of military history, which will be useful for those who wish for more than I give.

Histoire Critique et Militaire des Guerres de la Révolution, Rédigée sur de Nouveaux Documens, et Augmentée d'un Grand Nombre de Cartes et de Plans. Par le Lieutenant-

Général Jomini, &c. Paris. Chez Anselin et Pochard. 1820.

Napoleon als Feldherr. Von Graf York von Wartenberg, Major vom Grossen Generalstabe. 2 vols. Berlin. 1888.

Vie Politique et Militaire de Napoléon. Bruxelles. Librairie Militaire de J. B. Petit. 1842.

Napier (General Sir W.), History of the War in the Peninsula and in the South of France from 1807 to 1814. 6 vols. London. Boone. 1856.

Alison (Sir Archibald), History of Europe from the Commencement of the French Revolution to the Restoration of the Bourbons in 1815. Edinburgh. Blackwood. 1860.

No other general history approaches Alison's in copious reference to military authorities, or in graphic description of the battles with which he deals.

Fezensac (Duc de), Souvenirs Militaires de 1804 à 1814. Paris. J. Dumaine, Rue Passage Dauphine 30. 1863.

History of the Consulate and the Empire of France under Napoleon; forming a Sequel to "The History of the French Revolution." By M. A. Thiers, &c. Translated by D. Forbes Campbell, Esq. London. Chapman & Hall. 1845.

Suvóroff. By Lieutenant-Colonel Spalding. London. Chapman & Hall. 1890.

Der Krieg von 1806 und 1807. Von Eduard v. Höpfner, General-Major und Director der Königlichen allgemeinen Kriegsschule. Berlin. Simon Schropp. 1855.

Roszbach und Jena, eine Kriegsgeschichtliche Studie. Von Colmar Frhr. von der Goltz. Berlin. Mittler. 1883.

Mémoires sur les Guerres de Napoléon en Europe, depuis 1796 jusqu'en 1815. Paris. Roret, Librairie, Rue Hautefeuille. 1824. *By various hands.*

Mémoires pour Servir a l'Histoire Militaire sous le Directoire, le Consulat et l'Empire. Par le Maréchal Gouvion Saint-Cyr. Paris. Anselin. 1831.

Histoire de Napoléon 1er Par P. Lanfrey. Paris. Charpentier, 28 Quai du Louvre. 1869.

Commentaires de Napoléon Premier. Imprimerie Impériale, Paris. 1867.

This edition is at once more complete and more free from extraneous matter than any of the earlier ones.

I do not think it necessary to give the title-pages either of the Napoleon Correspondence, the Wellington Despatches, or the Supplementary Despatches, all of which are well known and easily found in libraries, while for ordinary readers they are only available there. I give the special volumes for Waterloo under that heading.

Mémoires du Maréchal Marmont, Duc de Ragusa, de 1792 à 1841. 9 vols. Paris. Perrotin. 1857.

I give these and St. Cyr's Memoirs because I have always found the two men throw much light upon any of the campaigns of Napoleon on which they have written, and they were beyond doubt his Marshals with the most thorough knowledge of war who have left us complete studies of these campaigns. Soult's Memoirs are very incomplete, and it is somewhat difficult to judge in the case of Massena's how much is due to himself and how much to his biographer. Still as, for purposes of reference, it may be useful to know of their nature, I give them.

Mémoires de Massena. Par le Général Koch. 7 vols. Paris. Paulin et Lechevalier. 1848.

Mémoires du Maréchal-Général Soult, Duc de Dalmatia. 3 vols. Paris. Amyot.

Scharnhorst. Von Max Lehmann. 2 vols. Leipzig. Hirzel. 1886.

The only valuable life, but invaluable.

Militärische Klassiker des In- und Auslandes. Militärische Schriften von Scharnhorst, Erläutert durch v. der Goltz. Berlin. F. Schneider & Co. 1881.

II. Books Relating to the Campaign of Waterloo, &c.

Waterloo. By G. Hooper. London. Smith, Elder, & Co. 1862.

Waterloo Lectures. By Colonel C. C. Chesney, R.E. London. Longmans, Green, & Co. 1874.

Campagne de 1815. Par Lieut.-Colonel Charras. Bruxelles. Meline Cans. 1858.

Campagne de 1815. Par E. Quinet. Paris. Michel Lévy. 1862.

History of the War in France and Belgium in 1815. By Captain W. Siborne. Third and revised edition. London. T. & W. Boone. 1848.

Passages from My Life. By Baron von Müffling. Edited, with Notes, by Colonel P. Yorke, F.R.S. London. Bentley. 1853.

History of the Campaign of 1815. By Müffling. Translated by Sir John Sinclair. 1816.

Feldzug von 1815. Von Clausewitz. Ferdinand Dümmler. 1835.

With which compare Wellington's reply in Vol. X., Supplementary Despatches.

Das Leben des Feldmarschalls Grafen Neithardt von Gneisenau. Von G. H. Pertz. Berlin. G. Reimer. 1864. The continuation, including 1814, 1815. Vols. IV. and V. Von Hans Delbrück. Berlin. G. Reimer. 1880.

Vol. IV. is the Waterloo volume.

Wellington Despatches. Gurwood. Vol. VIII. John Murray. 1852. And Supplementary Despatches. Vol. X. John Murray. 1863.

Derniers Observations sur les Opérations de l'Aile Droite de l'Armée Française à la Bataille de Waterloo, en réponse au Marquis de Grouchy. Paris. 1830.

Geschichte des Feldzuges von 1815. Nach archivarischen Quellen. Von General v. Olleck. Mittler. Berlin. 1876.

Histoire du Duc de Wellington. Par le Colonel Brialmont. Bruxelles. Emile Flatau. 1858.

Précis de la Campagne de 1815. Par le Général Jomini. Paris. 1839.

Précis de la Campagne de 1815. Par Van Loben Sels. Hague. 1849.

Notes on the Battle of Waterloo. By Sir James Shaw Kennedy, K.C.B. London. John Murray. 1865.

Quatre Bras, Ligny, and Waterloo. By Dorsey Gardiner. London. Kegan Paul, Trench, & Co. 1882.

I do not like to omit this book, as it is the most recent study of the campaign, and contains some very good work; but the author has injured it by following Colonel Chesney in certain points; as to which a verification of references would have shown him that Colonel Chesney was, at best, not fair in his treatment of the subject, and in making the whole campaign turn too exclusively on Napoleon's ill-health.

Mémoires du Maréchal de Grouchy. Par le Marquis de Grouchy. Paris. E. Dentu. 1873.

Pajol, Général-en-Chef. Par Comte Pajol. Paris. J. Dumaine. 1874.

Réfutation en ce qui concerne le Maréchal Ney. Par M. Gamot. Paris. 1818.

Documents inédits sur la Campagne de 1815. Par le Duc d'Elchingen. Paris. Anselin, Rue et Passage Dauphine, 36. 1840.

Journal of the Waterloo Campaign. By the late General Cavalié Mercer. 2 vols. London. W. Blackwood & Sons. 1870.

See also the biographies under the general heading of the Wars of the Napoleonic Era.

There is also a short memoir of D'Erlon's, of which I could give the title-page, but as I have myself tried for years to get it, either at first or second hand, and not succeeded, I do not think it would be of much service to my readers.

III. Campaign in the Crimea, 1854.

The War in the Crimea. By General Sir Edward Hamley, K.C.B. London. Seeley & Co. 1891.

For a brief study of the campaign this is as perfect as anything of the kind can be. Even for those who have read the larger histories the criticism is most valuable. It is no mere summary, but an original work.

Kinglake. The Invasion of the Crimea, its Origin, and an Account of its Progress down to the Death of Lord Raglan. By A. W. Kinglake. 8 vols. W. Blackwood. 1887.

Mr. Kinglake gives such copious references to all the authorities of all countries, that for those who really wish to study the campaign from all sources, his notes are in themselves a guide to other authorities. Unfortunately he does not give title-pages.

Todleben's "Défense de Sebastopol." Saint-Pétersbourg. N. Thieblin. 1863.

The work of the hero of the campaign.

Journal of Operations conducted by the Corps of Royal Engineers. By Major Elphinstone. London. War Office. 1859.

L'Expédition de Crimée. Par le Baron de Bazancourt. Paris. Amyot. 1856.

Despatches and Papers relative to the Campaign in Turkey, Asia Minor, and the Crimea during the War with Russia in 1854, 1855, 1856. Compiled and arranged by Captain Sayer, D.A.A.G., Horse-Guards. London. Harrison. 1857.

A valuable compilation of the official documents, very useful for reference.

IV. Campaign in Italy, 1859.

Der Krieg in Italien, 1859. Nach den Feld-Acten und anderen authentischen Quellen bearbeitet durch das kk. Generalstabs-Bureau für Kriegsgeschichte. 2 vols. Wien. C. Gerold's Sohn. 1872.

The Austrian account.

Campagne de l'Empereur Napoléon III. en Italie, 1859. Rédigée au Dépôt de la Guerre, 1860–61. Paris. Imprimerie Impériale. 1862.

The French official account.

Storia Politico-Militare della Guerra dell' Independenza Italiana, 1859–60. Pier Carlo Boggio. Turin. Sebastiano Franco. 1860.

There are three studies of the war, of which incomparably the most valuable is—

1. Der Italienische Feldzug des Jahres 1859. Redigirt von der historischen Abtheilung des Generalstabs der Königlich Preussichen Armée. Berlin. Mittler. 1863.

   By Von Moltke himself, and one of his most valuable writings.

2. Précis de la Campagne de 1859 en Italy. Bruxelles. C. Muquardt. 1887.

   A Belgian summary.

3. The Campaign of 1859. By E. M. Jones, 20th Foot. Webb. York Town, Surrey. 1870.

   The whole of the second part, from the sixth to the fourteenth letter inclusive, of Prince Hohenlohe's letters on strategy, is devoted to a study of this campaign.

V. Civil War in America, 1864, &c.

Narrative of Military Operations. By General Joseph E. Johnston. New York. D. Appelton & Co. 1874.

The Life of Major-General George H. Thomas. By Thomas B. Van Home, U.S.A. New York. Scribner. 1882.

Campaigns of the Army of the Potomac. By William Swinton. New York. Scribner. 1889.

History of the Army of the Cumberland. By Thomas B. Van Home. Cincinnati. Robert Clarke & Co. 1885.

Der Amerikanische Bürgerkrieg. Von F. Meerheimb, Major im Neben-Etat des Grossen Generalstabs. Berlin.

Appeared in "Deutsche Rundschau."

Campaign in Virginia, Maryland, &c. By Capt. C. C. Chesney, R.E. 2 vols. London. Smith, Elder, & Co. 1865.

The facts were hardly thrashed out when Colonel Chesney wrote, but his work is valuable nevertheless.

The Campaign of Fredericksburg. By a Line Officer [Major Henderson]. 1 vol. London. Kegan Paul, Trench, & Co. 1886.

Histoire de la Guerre Civile en Amérique. Par M. le Comte de Paris. 7 vols. Paris. Michel Levy Frères. 1874. *Unfinished.*

Memoirs of Robert E. Lee. By A. L. Long. London. Sampson Low, Marston, Searle, & Rivington. 1886.

Battles and Leaders of the Civil War. New York. The Century Company. 1887.

Campaigns of the Civil War. 11 vols. New York. Charles Scribner's Sons. 1881–83.

And the various biographies and memoirs of Lee, Jackson, Grant, Sherman, Sheridan, &c., all well known and easily called for by their names.

VI. Campaign in Italy and Germany, 1866.

Österreichs Kämpfe im Jahre 1866. Wien. C. Gerold's Sohn. 1868.

The Austrian official history.

Les Luttes de l'Autriche en 1866. Traduit de l'Allemand, annoté et publié par Franz Crousse, Capitaine au Corps d'Etat-Major Belge. Bruxelles. C. Muquardt, Place Royale. 1868.

The Belgian translation of the above, which is in many places intolerably bad, and requires to be compared with the original.

The Austrian "Ocial" has not been translated into English.

The Campaign of 1866 in Germany. Compiled by the Department of Military History of the Prussian Staff. Translated into English by Colonel von Wright, Chief of the Staff, 8th Prussian Corps, and Captain Henry M. Hozier, Stationery Office. 1872.

Antheil der Königlich Bayerischen Armée am Kriege des Jahres 1866. Bearbeitet vom General-Quartier-Meister Stohe. München. Hermann Monz. 1868.

The Bavarian official account of the western war; valuable for comparison.

Betrachtungen über Konzentrationen im Kriege von 1866. Militär-Wochenblatt, 1867. No. 18.

By Von Moltke, and therefore invaluable as a study for the 1866 campaign.

The Seven Weeks' War: its Antecedents and its Incidents. By Lieut.-Colonel H. M. Hozier. London. Macmillan. 1867.

Referred to in text, p. 109.

The Overthrow of the Germanic Confederation. By Sir A. Malet, K.C.B. London. Longmans, Green & Co. 1870.

Referred to in text, p. 109.

VII. Campaign in France, 1870.

Sedan: the Downfall of the Second Empire. By George Hooper. London. George Bell & Sons. 1887.

The best short account of the earlier part of the war.

Operations of the German Armies in France from Sedan to the End of the War. From the Journals of the Head-quarter Staff. By William Blume, Major in the Prussian Ministry of War. Translated by E. M. Jones, Major 20th Foot, Professor of Military History, Sandhurst. London. Henry S. King & Co. 1872.

The best short account of the later part of the war.

The Franco-German War, 1870–71. Translated from the German Official Account by Captain F. C. H. Clarke. London. 1874. Stationery Office.

Guerre de 1870. Par V. D. Paris. Dumaine. 1870.

Much too slender and sketchy, but on the whole the best French history.

Défense de Belfort. Par Denfert Rochereau. Paris. Armand le Chevalier. 1872.

L'Armée du Rhin. Par le Maréchal Bazaine. Paris. Henri Plon. 1872.

A poor book, but giving Bazaine's views.

La Première Armée de la Loire. Par le Général d'Aurelle de Paladines. Paris. Henri Plon. 1872.

La Deuxième Armée de la Loire. Par le Général Chanzy. Paris. Henri Plon. 1871.

La Marine au Siège de Paris. Par Admiral Ronciére le Noury. Paris. Henri Plon. 1872.

Défense de Paris, 1870–71. Par le Général Ducrot. Paris. E. Dentu. 1875.

La Guerre en Provence. Par Charles de Freycinet. Paris. Michel Lévy. 1872.

Campagne de l'Armée du Nord en 1870–71. Par le Général L. Faidherbe. Paris. E. Dentu. 1871.

Procès Bazaine. Paris. Librairie du Moniteur Universel, 13 Quai Voltaire. December 1873.

Most of the regimental histories of German regiments taking part in the war have been published. Many of these are worth referring to in connection with, and in illustration of, the official history; but I abstain from giving title-pages, because the histories cover the whole period of the life of the regiments, and only devote a comparatively short space to 1870. It is best, therefore, to use them only to clear up points as to battles in which the regiments have taken part.

Practical Tactics and War Training. Illustrated by the Battle of Spicheren, August 6, 1870. By Major G. F. R. Henderson, The York and Lancaster Regiment. Gale & Polden. 1891.

VIII. Campaign in Bulgaria, 1877–78.

Kritische Rückblicke auf den Russisch-Türkischen Krieg, 1877–78.

A German translation of a series of papers written by General Kuropatkin, Chief of the Staff to General Skobeloff.

The Russian Army and its Campaign in Turkey in 1877–78. By

F. V. Greene, U.S. Army. London. W. H. Allen & Co. 1880.

Défense de Plevna. Mouzaffer Pacha et Talaat Bey. Paris. L. Baudoin. 1889.

War in Bulgaria: a Narrative of Personal Experiences. By Lieut.-General Valentine Baker Pacha. 2 vols. London. Sampson Low, Marston, Searle, & Rivington. 1879.

IX. Minor British Wars since 1815.

Narrative of the Burmese War, 1824–26. By Major Snodgrass. London. J. Murray. 1827.

Conquest of Scinde. By Lieut.-General Sir W. F. P. Napier. London. Charles Westerton. 1857.

History of the Sepoy War in India, 1857–1858. By John William Kaye. 3 vols. 4th edition. London. W. H. Allen. 1865.

History of the Indian Mutiny. By Colonel G. B. Malleson, C.S.I. London. W. H. Allen & Co. 1878.
A conclusion to Kaye's work.

Campaigning in Kaffirland, 1851–52. By Captain W. R. King. London. Saunders & Otley. 1853.

British Expedition to Abyssinia, 1868. By Captain H. M. Hozier. London. Macmillan & Co. 1869.

Incidents in the China War of 1860. Compiled from the Private Journals of General Sir Hope Grant, G.C.B. By Henry Knollys, Captain Royal Artillery. William Blackwood & Sons. 1875.

The Ashanti War. By Captain H. Brackenbury. London. William Blackwood. 1874.

The Afghan War of 1879–80. By Howard Hensman. London. W. H. Allen & Co. 1882.

The Zulu War of 1879. Prepared in the Intelligence Branch of the Q. M. G. Department. London. 1881.

The Military History of the Campaign of 1882 in Egypt. Prepared in the Intelligence Branch of the War Office. By Colonel J. F. Maurice. London. Stationery Office. 1887.

History of the Sudan Campaign. In Two Parts, with a Case of Maps. By Colonel H. E. Colville, C.B. Stationery Office. 1889.

X. (i.) General Histories and Strategy.

Archduke Charles, Works by. Grundzüge des Strategie. 1813.
A translation into French by Jomini in 1818.

History of the Campaign of 1799. Published 1819.
Not easily obtained. The Archduke published so much of value, that it is difficult to select. Everything from his pen is valuable to those who have time to read it.

On War. By General Carl von Clausewitz. Translated (*very badly*) by Colonel S. S. Graham. London. Trübner. 1873.

Hinterlassene Werke über Krieg und Kriegführung des Generals Carls von Clausewitz. 10 Bände. Berlin. Dümmler.
Various dates.

Strategische Briefe. Kraft Prinz zu Hohenlohe-Ingelfingen. Berlin. Mittler. 1887.
A translation of these letters was begun by Lieut. H. E. Campbell, 29th Punjab Infantry, in the "Proceedings of the United Service Institution of India;" but it has unfortunately not been carried on beyond the first few letters.

Lettres sur la Stratégie. Paris. Louis Westhauser, 10 Rue de l'Abbaye. 1887.
Translation of above into French.

Principes de Stratégie: Etude sur la Conduite des Armées. Par le Général Berthaut. Paris. J. Dumaine. 1881.

Stratégie et Grande Tactique. Par le Général Pierron. Paris. 1887.
Invaluable, like all Pierron's series, as a book of reference. I give title-page of Pierron's other volume under Staff Duties, but they contain matter on almost all military subjects.

The Operations of War Explained and Illustrated. By Edward Bruce Hamley, Major-General, late Commandant of the Staff College. Fourth edition. William Blackwood & Sons, Edinburgh and London. 1888.

Great Campaigns: a Succinct Account of the Principal Military Operations which have taken place in Europe from 1796 to 1870. Edited from the Lectures and Writings of the late Major C. Adams by Captain C. Cooper King. William Blackwood & Sons, Edinburgh and London. 1877.

Des Marches et des Combats par le Général Berthaut. Paris. Libraire Militaire de J. Dumaine. 1879. 2 vols.

La Guerre Moderne. By V. Derrécagaix. Paris. Libraire Militaire de L. Baudoin et Cie. 1885. 2 vols.

Strategie: eine Studie von Blume, Oberst und Kommandeur des Magdeburgischen Füsilier-Regiments No. 36. Berlin. Mittler. 1882.

Prince Kraft zu Hohenlohe constantly refers to this work in his letters. Its character may be best judged from them.

(ii.) General Tactical Works.

"About Tactics." By Captain Laymann, 49th Pomeranian Infantry Regiment, Instructor in Tactics at the Royal War School, Cassel. Translated by E. M. Jones, Captain 20th Foot, F.R.G.S. London. Harrison. 1871.

The Prussian Campaign of 1866: a Tactical Retrospect. Translated from the German by Colonel H. A. Ouvry, late 9th Lancers. Third edition. London. W. Mitchell. 1870.

On the Prussian Infantry, 1869. Translated from the German by Colonel Henry Aimé Ouvry, C.B., late 9th Lancers. London. W. Mitchell. 1870.

The two last were by Captain May.

Précis of a Retrospect on the Tactical Retrospect, and Reply to the Pamphlet on the Prussian Infantry of 1869. By Colonel von Schellendorf. Translated by Colonel Ouvry (as above). London. W. Mitchell. 1870.

I have mentioned this book in the text. It certainly does not represent modern views, but has some historical value.

On War. By General Carl von Clausewitz. Translated by Colonel J. J. Graham. London. Trübner & Co. 1873. *See Strategy.*

A Chapter on Outposts. By Colonel Hamley, Commandant of the Staff College, &c. London. W. Blackwood. 1875.

The Elementary Tactics of the Prussian Infantry. London. Harrison. 1871.

This book, though it does not apply to the present condition of Prussian tactics, is very useful to any one reading the history of the war of 1870, as it gives explanations of the normal formations of the Prussians at the time. It should, however, be read with the following little pamphlet, which describes changes which were known to the army, and partly

adopted during the war, though not officially authorised till after it was over.

Was enthält das Neue Reglement. Von Regolla von Biberstein, Premier-Lieutenant im zweiten Hannoverschen Infanterie-Regiment No. 77. Berlin. 1871.

Maximes de Guerre de Napoléon. Paris. J. Dumaine. (Various editions. The third, before me, is dated 1846.)

An invaluable little book, if it is read in the right way.

The System of Attack of the Prussian Infantry in the Campaign of 1870–71. By Lieut.-Field-Marshal William Duke of Würtemburg. Translated from the German by C. W. Robinson, Captain Rifle Brigade. London. W. Mitchell. 1871.

Infantry Fire Tactics. By Captain C. B. Mayne, R.E. Second edition. Chatham. Gale & Polden. 1888.

Précis of Modern Tactics. By Colonel R. Home, C.B., R.E. Printed for H.M. Stationery Office. 1873.

The official text-book. Unfortunately Colonel Home never had the opportunity to revise his own work. It has many defects, which he recognised. Many of the views are rather out of date, but it is full of thought, and very interesting.

Minor Tactics. By Brigadier-General Clery, C.B., Commandant of the Staff College. London. Kegan Paul, Trench, & Co. 1891. *In the press.*

The official text-book.

The Essentials of Good Skirmishing. By Colonel G. Gawler, K.H. London. Parker, Furnivall, & Parker. 1852.

Tactical Deductions from the War of 1870–71. By A. V. Boguslawski. Translated by Colonel Sir Lumley Graham. London. Henry S. King & Co. 1874.

Studies in Troop-Leading. By Colonel I. von Verdy du Vernois. Translated from the German by Lieutenant H. J. T. Hildyard. London. H. S. King & Co. 1872.

Letters on Artillery. By Prince Kraft zu Hohenlohe-Ingelfingen. *See* Artillery.

Letters on Infantry. By Prince Kraft zu Hohenlohe-Ingelfingen. Tranlated by Major N. L. Walford, R.A. Edward Stanford. 1889.

Letters on Cavalry. By Prince Kraft zu Hohenlohe-Ingelfingen. Translated by Major N. L. Walford, R.A. Edward Stanford. 1889.

New Tactics of Infantry. By Major W. von Scherff. Translated by Colonel Sir Lumley Graham. London. Henry S. King & Co. 1873.

Tactical Examples. By Hugo Helvig. Translated by Colonel Sir Lumley Graham. London. H. S. King & Co. 1877.

Règlement du 12th Juin 1875 sur les Manœuvres de l'Infanterie, avec Rapport à M. le Ministre de la Guerre. Paris. Dumaine. 1875.

I have referred in the text (p. 114) to this work.

Kriegsgeschichtliche Einzelschriften. Various papers by the Staff. Berlin. Mittler. 1883 and successively.

Untersuchungen über die Taktik der Zukunft. Von Major Fritz von Hoenig. Berlin. Mittler. 1890.

This book, apart from its general tactical interest, is valuable as correcting certain misstatements of the Official History in regard to the attack of the 38th Brigade at Mars la Tour, and as giving certain evidence as to the 28th Brigade at Königgratz.

Major Von Hoenig, to some of whose works I have referred in the text, is the author of a series of volumes all of which are well worth reading, though some of his readers complain that he occasionally repeats himself a good deal, and writes at unnecessary length. He, however, as the prime mover in the cavalry revival, did excellent service, more especially by two works, one of which has been translated by Captain Leverson, R.E., in the "Journal of the United Service Institution," vol. xxxiv., *under the title of "The Cavalry Division as a Body in the Fight;" the other, by the same author, in successive numbers of "The United Service Magazine," as "Tactical Guides for the Cavalry Division."*

Gespräche über Reiterei. Von Kraft Prinz zu Hohenlohe Ingelfingen. Berlin. Mittler. 1887.

Der Gebirgskrieg. Von Franz Freiherrn von Kühn. Siedel und Wien. 1878.

Etudes de Guerre. Par le Général Lewal. Tactique de Combat. 1875. Tactique de Marche. 1876. Paris. J. Dumaine.

Other volumes on important subjects. These, like the volume called "Partie Organique," are not easy to classify, but are all valuable.

La Tactique d'Aujourd'hui. Par le Capitaine Waldor de Heusch, des Grenadiers, Professeur à l'Ecole Militaire de Bruxelles. Bruxelles. 1887.

A useful summary of current military views on tactical questions.

Studien über Felddienst von Verdy du Vernois. Berlin. Mittler. 1887. 2 parts.

See text.

The Nation in Arms. Translated from the German of Lieut.-Col. Baron von der Goltz, by Philip A. Ashworth. London. W. H. Allen & Co., 13 Waterloo Place. 1887.

Der Detachmentsführer. Von A. von Schell, General-Major und Kommandeur der Garde-Feld-Artillerie-Brigade. Berlin. Bath. 1888.

Excellent.

Kriegsgeschichtliche Beispiele. Von Lettow-Vorbeck. Berlin. Decker. 1884.

Well worth translating.

Ueber das Infanterie-Gefecht, Vortrag von V. Schlichting. Berlin. Mittler. 1879.

"The Summer-Night's Dream."

This work, of which a translation has recently been published in "The United Service Magazine," is chiefly valuable for the light which it throws upon many incidents of the 1870 campaign, of which we knew little before. The unmistakable knowledge and skill of the writer, however, have made his book one of the most discussed, as it is certainly one of the most suggestive volumes that have appeared since 1870. The form adopted probably implies that the writer, who is understood to be Colonel Mekel, does not wish to bind himself too closely to his practical suggestions. It is, at worst, very lively and interesting.

Maps and Atlases.

As a rule, the best maps for the study of the campaigns of Frederick the Great or Napoleon are those contained in the Atlases published with the works devoted to the study of the several campaigns. Jomini, Alison, Soult, and several others, have all published excellent atlases to accompany their works. For Waterloo, Von Ollech and Charras, and the large Belgian

map, are, I think, the best. Kinglake supplies elaborate maps for the Crimea.

For 1859, *the maps with the French official account are very good.*

For 1866, *the plans of battles with either Austrian or Prussian official history are excellent, and the small sketches given in the Prussian official history show the situations admirably, but the maps of the campaign are on an excruciatingly small scale, almost unreadable without a magnifying-glass.*

For 1870, *the maps with Colonel Clarke's translation or the Prussian Official are perfect. Going over the ground with them again and again, I have hardly found a flaw.*

The official maps published by the United States Government of the Civil War are almost as good as the German, but they are not on sale, though most liberally presented to libraries.

For 1877–78, *there is no good general map, the country having been very imperfectly surveyed.*

For general purposes I have for years used "Andrees' Hand Atlas," of which Messrs. Cassell are just now bringing out a new English edition. It has never failed me, and I greatly prefer it to English atlases six or seven times its price.

Each of the works on modern English expeditions is well supplied with maps made during the campaign.

Lastly, the "Atlas des plus mémorables batailles, combats et sièges des temps anciens, du moyen age, et de l'age moderne, en 200 *feuilles, par F. de Kausler, Major à l'Etat-Major-Général Wurtembergeois. Carlsrouhe et Fribourg. B. Herder.* 1831," *is an invaluable collection.*

(iii.) General Technical Works.

Surveying.

Text-Book of Military Topography. By Colonel W. H. Richards. Printed for H.M. Stationery Office by Harrison & Sons. London. 1888.

The official text-book.

Military Sketching Made Easy. By Major H. B. Hutchinson. Chatham: Gale & Polden.

A very practical and readable book.

Fortification.

Fortification, its Past Achievements, Recent Development, and Future Progress. By Major G. S. Clarke, C.M.G. London. John Murray. 1890.

The latest, as it is certainly one of the most interesting and original books on the subject we have. See note at foot of list of books.

Field Works: their Technical Construction and Tactical Application. By Colonel C. B. Brackenbury. London. Kegan Paul, Trench, & Co.

Full of valuable matter, very readable.

Text-Book of Fortification, &c. By Colonel G. Philips, R.E. London. Pardon & Sons. 1884.

The above is the official text-book. The several volumes of instruction in military engineering in all its branches are very numerous, and are advertised in all official publications. They constitute the Chatham text-books.

Field Fortification. Notes on the Text-Book. By Major K. D. Hutchinson. Chatham. Gale & Polden.

A useful abstract.

La Fortification et l'Artillerie dans leur Etat Actuel. Par un Comité d'Officiers d'Artillerie et du Génie. Bruxelles. Spineux & Cie.

La Fortification du Champ de Bataille. Par le Lieut.-Gén. A. Brialmont. Bruxelles. Librairie C. Muquardt. 1878.

Manuel de Fortification de Campagne. Brialmont. Bruxelles. Librairie Muquardt. 1879.

A résumé of some chapters, reviewed and completed, of the author's "Fortification du Champ de Bataille," several new chapters, and numerous details of execution.

Grundriss der Fortifikation. Von Reinhold Wagner. Berlin. 1872.

Leitfaden zum Unterricht in der Feldbefestigung. V. Brunner. Wien. 1877.

Artillery.

Letters on Artillery. By Prince Kraft zu Hohenlohe-Ingelfingen. Translated by Major N. L. Walford, R.A. London. Edward Stanford. 1888.

After some hesitation, I prefer to leave this to stand alone on the subject, as I think it contains most that is of value for British officers, and will suggest other sources of information. The various text-books of Gunnery, &c., scarcely concern any but Artillery officers, to whom they are all well known.

Staff Duties.

Les Methodes de Guerre actuelles et Vers la Fin du XIXième Siècle. Par Lieut.-Colonel Pierron. Paris. J. Dumaine. 1878, &c.

An invaluable book of reference on almost all military subjects.

Duties of the General Staff. By General Bronsart von Schellendorf.

The Soldier's Pocket-Book. General Viscount Wolseley. Macmillan & Co. 1886.

A Series of Lectures Addressed to the Officers at the Staff College. By Colonel Clarke, R.A. Latest edition, revised by Colonel Rothwell, R.A. Stationery Office. 1890.

Line of Communications. Colonel Furse. Clowes & Co. 1886.

Railways.

Die Kriegsführung unter Benutzung der Eisenbahnen und der Kampf um Eisenbahnen. Leipzig. F. A. Brockhaus. 1882.

Railway Appliances. J. Wolfe Barry. Longmans. 1881.

Telegraphs.

The Military Telegraph during the Civil War in the United States. By W. R. Plum. 2 vols. Chicago. 1882.

Les Telegraphes et les Postes pendant la Guerre de 1870–71. Paris. F. F. Steenackers. 1883.

Military Law.

The Official "Manual of Military Law." Stationery Office. 1884.

To my mind, the best manual on any subject I ever saw.

Martial Law and the Custom of War. Colonel Tovey, R.E. Chapman & Hall 1886.

Digest of the Law of Evidence. Sir James Fitz-James Stephen. Macmillan & Co. 1877.

Hints to Courts-Martial. By T. C. O'Dowd. London. Clowes & Son. 1883.

The work of the Deputy-Judge-Advocate.

Military Law. By Lieut.-Colonel S. C. Pratt, R.A. London. Kegan Paul, Trench, & Co. 1889.

A valuable précis.

NOTE.—In my preface I have spoken of the effect of the introduction of "high explosives." I reserve, however, for this note to Major Clarke's volume a reference to the changes in fortification which are now rapidly taking place on the Continent in consequenee of the introduction of the new explosives. Both France and Germany are spending enormous sums of money in altering their fortifications. The purpose is to relieve them from that condition which a few years ago made many of the most experienced officers of both armies believe, as I have put it in the preface, that in their former condition the fortifications might be destroyed even by field-artillery armed with high explosives. Major Clarke, in his very able work, appears to me to have passed the subject by with an indifference which does not inspire confidence in the conclusions at which he has in this matter arrived. Neither France nor Germany spend vast sums of money under the advice of men who are likely to be affected by "unreasoning panic" (p. 113). Moreover, I happen to have been the "recent speaker at the R.A.S. Institution who appeared to contemplate the practicability of clearing the Channel by picrates."

If "practicability" means that I suggested that the thing was at present reduced to a condition of mathematical precision, certainly that neither represented my views nor my argument. But I do share with many of our ablest sailors considerable anxiety on the subject, and I should have been very grateful to Major Clarke if he could have relieved my doubts about it. He has, however, shown conclusively that he misunderstands the cause of the anxiety which he pooh-poohs. He thinks it sufficient to pass the subject by, saying that it is "by no means certain that the French have overcome the difficulties which surround the use of this material." Those difficulties consist in the fact that it is deteriorated and made dangerous by much transport from point to point, and that no one has yet discovered a picrate or other high explosive which is permanent for a lengthened period.

Now the French are meeting this difficulty by vast storage at different

centres of the materials of mélinite. They make it fresh, and they load their shells fresh each year.

That being so, the point to which I want to get an answer, for which I have as yet asked in vain, is this: What is there to prevent a French Channel fleet being stored with shells recently filled with fresh-made explosives? Would those shells not, under those circumstances, be good for a week's work? Would any Admiral like to meet a fleet armed with them if he had no high explosive shells himself? Could an English fleet, which must necessarily be gathered from many distant points, be as easily supplied with fresh-made roborite and fresh-filled shells as a French fleet, which had only to issue direct from ports in which mélanite is made, could be stored with shells freshly filled with new mélanite?

The subject is not one which directly concerns either my subject or Major Clarke's; but the indirect effect which its solution will have upon all warfare in which an English army may be engaged induces me to notice it in this note. It is therefore important that, as I have done so, I should state the purpose for which, in the discussion to which Major Clarke refers, I raised the point about the risks involved for us in the present condition of the high-explosive question. It was only as an illustration, though a serious one, of the uncertainties which attend the future of naval warfare. This particular danger may or may not be serious. I think it very serious. I shall continue to think so as long as I cannot succeed any better in getting an answer to my question about it than Lord Charles Beresford succeeded when he tried to draw the attention of the House of Commons to it as a matter vital to the interests of the country. But even if there be an answer to this point, it would not affect the value of it as an illustration of the uncertainties which hang over the whole future of naval warfare. It is very difficult to foresee what will happen in the next land-war; but there the future is open and certain if it be compared with the utter darkness into which our best sailors have to gaze when they contemplate the circumstances of the next great naval engagement. That is a fact with which I am not sorry to close this volume, because the public, for whom it is chiefly intended, is apt to think that they may safely ignore the questions which are raised in it, because of their confidence in the security provided by the "silver streak."

INDEX.

ABILITY, military, not to be gauged by chance success, 21
Adams, Major, "Great Campaigns," 110
Adrianople, 33
Advanced and rear guards, 89
Aims of strategy, 32
Aldershot, not Pall Mall, place for working out drill, 55; and Preface, vi.
Algerian campaigns injurious to French army? 94
All past wars worthy of study, 11
American Civil War, cavalry in, 65
—— Civil War, literature of, 109
Ammunition, increased expenditure of, as affecting strategy, 16
—— supply of artillery, 74
"Arm blanche," the proper weapon of cavalry, 63
Armies, modern, compared in power with those of Napoleon, 16
—— modern, effect of increased power, on strategy, 16
—— spirit of modern, affecting strategy, 17
—— co-operation of, from different bases, 20
—— movements of, as affected by transport, 27
—— not mere gatherings of armed men, 29
—— *See also* Modern Armies.
Arms, changes in, have affected nature of discipline, 1
—— determine nature of fighting, 1
—— men organised for employment of, essence of army, 1
Army, essence of, connected with arms in use, varies with them, 1
—— Prussian, effect on, of peace practice, 3
—— article on, in *Encyclopædia Britannica*, referred to, Part I., first line, 5
Army. *See* also British, Prussian, and Russian Armies.
Art of war, result of accumulated experience, 7
—— or study of war, great generals on, 11
—— war as an, 22
Artillery, field, *v.* permanent fortifications, 10
—— tactics, 68
—— training, German and French, prior to 1870, 69
—— massed, 72
—— to be advanced without reserves, 72
—— duel the certain beginning of a regular battle, 73
—— successive positions of, in fight, 73
—— offensive tactics, 74
—— tactics, general rules, 74
—— to remain in position even if ammunition be exhausted, 74
—— defensive tactics, 75
—— in cavalry action, 75
—— and infantry fire, relative effects of, 78
—— French evidence on, 78
—— General Sheridan on, 79
—— fire, moral effect of, 80
—— alone unable to cause abandonment of a position, 81
—— to prepare the way for assault on a position, 82
—— fire at Waterloo, destructive effects of, 83
—— Hoffbauer on, 111
Austerlitz, artillery formation at, 68

BASE of supply, 14-28
Bases of supply, co-operation from different, 20
Battery fire, regulated, 73
Battle action, how prepared for by Germans, 4, 5

Battle, organisation replaces drill in, 6
—— normal course of a modern, 77
Battlefield the province of tactics, 7
Battles brought on in 1870 by subordinate leaders, 18
Bayazid, 33, 34
Benedek, Austrian commander, 39
Blucher, 39
Boers, an ideal body of mounted infantry, 65
Boguslawshi's "Tactical Deductions," 111
Bohemia, campaign in, 110
Brackenbury, Colonel C. B., on fortification, 118
Breech-loader, exaggerated impression produced by, 2
—— fight does not admit of manœuvring, 46
British army, disadvantages of, as regards transport, 26
—— perfection of Peninsular transport, 26

Cæsar at Dyrrachium and Pharsalia, 1; a student, 121
Cæsar's campaigns worthy of study, 12
Campaign of Fredericksburg worthy of study, 12
—— of 1813, 15
—— of 1870, 33, 46, 47
—— of 1877–78 in Asia, 33
—— of 1877–78 in Europe, 33, 34
—— of Waterloo, 36, 39
—— of 1866, 39, 40
—— in Crimea, 107
—— of 1859, 107
—— in Western Germany, 109
—— of 1877–78, 114
Campaigns, British, beyond sea, 41
—— in uncivilised countries, 41
—— of 1854 and 1859 of less interest than those of Napoleon, &c., 107
—— criticism on, by Von Moltke and Prince Hohenlohe, 187
Carelessness apt to be engendered by series of small wars, 95
Catalepsy in modern fight, 50
—— Preface, viii
Cavalry action, views of Russian leaders on, 68
—— horse artillery in, 75
—— raids, 31
—— under Stuart and Sheridan, 31
—— the strategical arm, 35
—— attack on artillery or infantry impossible without cover, 62
—— tactics, 62
Cavalry weapon, the proper, 63
—— in modern fight, false deductions from peace manœuvres, and from 1870 campaign, 66
—— interfering with mobilisation, 80
—— modern German books relating to, 117
Century Magazine, value of articles on American Civil War in, 108
Chance success not a gauge of military ability, 21
Change in modern fight due to scientific invention, 1; has affected army spirit and discipline, 1; not foreseen by those who forced it on, 1; rendered possible by change in men composing armies, 4; essential nature of, 5; has led to dispute as to value of past experience, 6; implies a higher effort and less perfect success, 6; has it affected strategy as well as tactics? 7
—— in strategy due to changes of its implements, 14; caused by increased size of modern armies, 15
—— in tactics, Napoleon on, 13
Changed spirit of armies affecting strategy, 18
Changes in tactics affected by introduction of breech-loader, 13
—— since 1815 in general conditions of war, 14
Chesney, Waterloo lectures, 104
Choice of position, 84
Circumstances tending to change the character of the larger tactics, 84
Clausewitz on difficulty of raiding, 31
Close formations, how broken up into "open order," 3
Colley, Sir George, quotation from, 45
Colonel Macdonald on fire discipline, 51
Columns, how broken into "open order," 3
Combined action of the three arms, 76
Command, difficulty of, in modern action, 3
—— higher, now limited to direction and object of attack, 3
—— importance of large units of, 5
Commanders, great, have judged moral force of armies, 1
Communications, line of, 14
Comparison of power of modern armies and of those of Napoleon's time, 16
Compressed food and forage affecting strategic movement, 17

Comte de Paris on American Civil War, 107
Concealment of purpose essential to success, 35
Concentration adds to difficulty of supply, 35; at opening of campaign, importance of, 35
—— point of its selection, 35, 36
—— out of reach of enemy's army a preliminary necessity of every campaign, 36
—— dependent on nice adjustment of time, 40
—— how modified, 40
Confusion of terms "practice and theory," 49
Continuity of supplies, 28
Control drill, 51
Control. *See* Command.
Co-operation of armies acting from different bases of supply, 20
—— of all arms, necessity of, 81
Corunna, 22
Cover of vital importance for cavalry attack, 62
Crimea, campaign in, 107
Criticism, Müffling on, 22
Cromwell, 121, 122, 123
Crown Prince of Prussia, 39

DARWIN, 43
Defensive tactics of artillery, 75
Defiles, 37
—— advantage to be taken of, 37
Definition of strategy, 7
—— Sir E. Hamley's, of tactics, 7
Delay imposed by defiles, 37
Deploy, forcing enemy to, 37
Detached force in enemy's rear, 86
Detaining power, application of, 38
—— of small bodies, 36, 38
Deployment of force, what it means, 37
Depôting, 41
Difficulty of securing united action under present conditions, 45
Direction of attack still within scope of command, 3
Discipline, modern, affected by changes in arms, 1; implies intelligent co-operation, 4
—— in relation to modern tactics, 43
Dispersion of army facilitates supply, 35
Distinction between strategy and tactics, 7
Dresden, Napoleon at, 11
Drill, essential nature of, 4
—— how replaced by organisation and training, 4
—— inherited from Frederick, modified by Napoleon, 4
—— control, 51
Drill-sergeant, the old, has lost his place, 6
Dyrrachium, 1

EDUCATION as affecting modern discipline, 4
Effect of engrained habits of a long peace on armies despite recent war experience, 49
—— of artillery and infantry fire, relative and distinctive effects of, 78
—— of artillery fire, French evidence on, 78
—— General Sheridan on, 79
Error inevitably increased in modern soldiering, 6
Erzeroum, 33
Expenditure of ammunition, increase of, as affecting strategy, 16
Experience of past in relation to present facts, 19
—— of past fighting, value of, disputed by some because of modern changes, 6
Experiments, necessity of, to decide on best form of infantry drill, 52
—— on infantry drill prior to Peninsular War, 54
Explosives, high, ix
Extension motions, importance of, 44
Exterior lines, enemy on, effecting junction, 39

"FATHER," Russian, of groups, 55
False deductions from peace manœuvres and from 1870 campaign as to rôle of cavalry in fight, 66
Field artillery *v.* permanent fortifications, ix
Fire control drill, 51
—— discipline, 51
—— long range and reserve, 57
"Firing from the flank," 73
Food, compressed, as affecting strategy, 17
Formations. *See* Open Order and Close Formations.
Forms of organisation. *See* article "Army," *Encyclopædia Britannica*.
Fortifications, permanent; high explosives, x

Frederick, Charles, of Prussia, 39
Frederick the Great, drill forms of fight inherited from, 4
Fredericksburg, campaign of, worthy of study, 12, 109
French account of campaign of 1870, 112
—— military books, 113
—— regulations, modern, 116

GENERAL conditions of war, changes in, since 1815, 14
General deduction as to relation between past experience and present facts, 19
German military training, 4, 5; literature, modern, 116
Germans. *See also* Prussians.
Germany. *See also* Prussia.
Gizycki "On the Study of Military History," 94
Goltz, Baron von der, 43; on length of road occupied by army on march, 89
Gordon in China, assisted by study of Peterborough, 10
Greene, V., on campaign of 1877–78, 115
Group fighting and control drill, 50
Guards, advanced and rear, 89

HABITS of a long peace, effect on armies, 49
Hamley, Sir E., on "Rules of War," 9; proposal for detached force in enemy's rear, 86
High explosives, ix
Historical student, advantages possessed by, 23; study, conditions of, 22, 23; of war, use and abuse of, 22, 23
Histories, regimental, of 1870, 2
History, official Prussian, of 1870, has changed view of that war, 2
Hoffbauer's "German Artillery," 111
Horse artillery in a cavalry action, 75
Hozier, Colonel, "Seven Weeks' War," 109

IMPLEMENTS of strategy more completely changed than those of tactics since time of Wellington and Napoleon, 14
Importance to statesmen of not gauging military ability by chance success, 21
Impossibility of formulating systematic series of rules of war, 8; of training great body of fighting men in opposite directions at once, 63
Increased size of modern armies causes change in strategy, 15
—— expenditure of ammunition as affecting strategy, 16; power of modern armies as affecting strategy, 16
Independence of action in all ranks of the Prussian army affecting strategic operations, 18
Infantry tactics, 42
—— action, points to be attended to in modern, 47
—— drill, necessity of experiments to decide as to the form of, 52
—— Col. Macdonald's proposals for, 53
—— experiments on, prior to Peninsular War, 54
—— Sir John Moore's experiments on, 54
—— Russian system of fours, 55
—— mounted, 65
Information, want of, at Russian headquarters, 35
Instrument, mechanical, replaced by living organism, 6
Instinctive obedience, importance of, 44
Intelligence and reconnaisance, 91
—— necessary to modern discipline, 4
"Interior lines," 38
—— in Waterloo campaign, 39
—— Napoleon's favourite strategy, 40
Ismailia, landing at, 27
Italian writers, 113

JOMINI on rules of war, 9
Judgment training of the vital matter, 24
Julius Cæsar a student of war, 121

KARS, 33, 34
Kraft, Prince, on great effect of sudden surprise by cavalry, 64; on artillery tactics, 71, 74
Kriegspiel, value of, 24

LARGER tactics, tendency to simplification of, 76
—— circumstances tending to change the character of, 84
—— simplification of, 84
Laymann, "About Tactics," 111
Le Mans, artillery fire at, 80

Length of army corps on single road, 88
Life, loss of, at particular points, affecting formations, 3
Line of communication, weakness of, 28, 29
—— protected by army directly fronting enemy, 31
—— exposed to attack if hostile army threatens them while protecting its own lines, 32
—— instances of successful attacks on, 33
—— of operations, 28
Lines, how broken into open order, 3
Literature, military, 93
—— of American Civil War, 107
—— of campaign in Bohemia, 110
—— of campaign of 1866, 109, 110
—— of campaign of 1870, 111
—— of campaign of 1877-78, 115
Long-range and reserve fire, 57
Long-range fire, disadvantages of, 57; is principally unaimed fire, 57
—— at Plevna, 58
—— special cases of, 59

Macdonald, the Right Honourable J. H. A., now Lord Justice-Clerk, on fire discipline, 51
—— proposals for infantry drill, 53
Macaulay on "Rules of War," 10
MacMahon's movements revealed to Prussians by French and English newspapers, 17
Magazines, military, 113
Majuba Hill, 50
Mallet's "Overthrow of the Germanic Confederation," 109
Manœuvring in breech-loader fight impossible, 46
Maps, 140
Marches, 87
Massed artillery, effect on modern fight, 3, 72
Masses of men, how rendered impossible as fighting formation, 3
May, Captain, on difficulty of volley-firing in actual war, 6; as author, 110
Mechanical instrument replaced by living organism, 6
Method peculiar to campaigns in uncivilised countries, 41
Military history, comparison of many accounts valuable, 100
—— literature but little studied in this country, 93
Military magazines, 113
"Mitte, In der taktischen," 40
Mobilisation of enemy to be interfered with by cavalry, 90
Modern armies, increased size of, causing change of strategy, 15
—— increased power affecting strategy, 16
—— comparison with those of Napoleon's time, 16
—— organised transport of, 26
—— battle, normal course of, 77
—— fight, change historically traced, 3
—— leads to severe loss of officers and non-commissioned officers, 3
—— fighting, relative imperfection of, 6
—— infantry action, points to be attended to, 47
—— warfare, nature of essential change, 5
—— war, none yet worked out from full experience, 2
—— peace practice essential for, 2
Modification of "concentration," 40
Moltke, Von, on great effect of sudden surprise by cavalry, 62; various writings,
Monk's advocacy of military study, 123
Moore, Sir John, after Corunna, unfairly judged, 22
—— experiments on infantry drill, 54
Moral effect of artillery fire, 80
—— forces the most important in war, 1
Mouktar Pasha, 33; his army destroyed by detached force in his rear 86
Mountains, passage of defiles, 37
Mounted infantry, 65
Movements of armies affected by transport, 27
—— strategic, dependent on means of obtaining supplies, 13
Müffling's motto for his title page, 22.
Mutual knowledge of one another among higher leaders, 42; confidence among all ranks, importance of, 43

Napier, Sir Charles, on the duty of reading, 120
Napoleon modifies, does not change principle of, drill, 4

Napoleon, first campaign in Italy the most brilliantly conceived of all he fought, 11
—— on study of war, 11
—— on change in tactics, 13
—— in 1813 and 1814, 15, 16
—— concentration in Waterloo campaign, 36, 39
—— on Waterloo, 101
—— writers on campaigns of, 103
—— als Feldherr, 104
Necessity of concentration at opening of campaign, 35
Newspapers as affecting strategy, 17
Ney, works relating to, 105
Noise, effect of in modern battle, 3
—— probable diminution of, in future war, viii; diminution of, does not modify conclusions, viii of article War
Noiseless powder, viii
Normal course of a modern battle, 77
Number of works published on American Civil War, 107

Obedience instinctive, importance of, 44
Object of attack still within scope of higher command, 4
Objection to books as theoretical, 97
Offensive tactics of artillery, 74
Officers, loss of, in modern fight, 3
—— superior, lose command of launched troops, 3
Official history, Prussian, has changed view of 1870 war, 2
Open order formations, how forced on armies, 3
Order of march, 87
Organic unity of enemy, importance of breaking up, 30
—— working, meaning of, 5
Organism, living, replaces mechanical instrument, 6
Organisation and training become substitute for drill, 4
—— idea of what it implies, 5
—— how it acts in modern fight, 46
—— required for fire control, 52
—— forms of. *See* article "Army" in *Encyclopædia Britannica*
Organised transport, necessity of, 26
Osman Pacha, 33, 34
—— his move on Plevna, 33
Outflanking movements, provision against, 85
Out posts, 90

Palikao and "Rules of War," 9
Peace tending to stereotype forms, 49
—— practice, effect of, on Prussian army, 3
—— essential for modern war, 2
—— preparation for war of Prussian officers, 23
—— training, practice, &c. *See* Practice
Period of past war most suited for study, 11
Personal evidence regarding battles limited, 96
Peterborough, Macaulay on, 10
—— study of, assisted Gordon in China, 10
Pharsalia, 1
Plevna, 33, 34
—— Osman's failure from remaining at, 34
—— Osman's move on, 33
—— Russian mistakes at, 34
—— unaimed long range fire at, 58
Point of concentration, selection of, 36
Points to be attended to in modern infantry action, 47
Position, choice of, 84
Powder, the new, vi, viii, ix
Power of modern armies, comparison of, and of those of Napoleon's time, 16
Practical work, 50
"Practice" and "theory," confusion of terms, 49
Practice, the most modern peace, not yet applied in war, though based on war experience, 3
—— peace for war best method, 24
Premature actions caused by too large advanced guards, 89
Preparation for war of Prussian officers, 23
—— *See* Training
Present facts, relation between, and past experience, 19
Principles of modern fight not yet fully applied in war, 2
Prince Hohenlohe's works, 117
Proper cavalry weapon, 63
—— rôle of cavalry in modern fight, 63
Province of strategy the theatre of war, 7
—— of tactics the field of battle, 7
Provision against outflanking movements, 85

Prussia in 1866 and in 1870, secret of her power, 2, 3
Prussian army, excellent training of, 3; imperfections in execution of, 6
—— arrangements for re-forming stragglers into reserves, 47
—— official history. *See* History, Official
Prussians. *See also* Germans
Pulse, moral, of armies, 1

RAIDS by cavalry, 31
Railway, slowness of embarkation and disembarkation, 27
—— transport, ignorance of French army in 1870 as to conditions of, 28
—— slowness of for short distances, 27
Railways as affecting strategy, 14
Rapid advance in uncivilised countries, secret of, 41
Rear and advanced guards, 89
Reconnaissance and intelligence, 91
Re-formation of stragglers into reserves, 47
Regimental histories. *See* Histories, Regimental
—— transport, 26
Regulated battery fire, 73
Relations of strategy and tactics illustrated, 33
Relative destructive effects of artillery and infantry fire, 78
"Right about," 44
Rivers, passage of defiles, 37
Rules of War, Clausiwitz on, 9
—— Hamley on, 9
—— Macaulay on, 10
—— Palikao, 9
Russian army in 1877–78, 33
—— system of infantry drill, 55
—— writers, 113

SADOWA, campaign of, 40
St. Privat, presence of mind at, 50
Schellendorf, reply to Captain May, 111
Science has forced on change in war, 1
Sergeant, drill, the old, has lost his place, 6
Separating enemy's forces, importance of, 32
Seven Weeks' War, 109
Shelter, how utilised in attack, 3
Sheridan as cavalry leader, 31
Shock tactics of past superseded, 56
Shooting the essence of modern fighting, 56
Simplification of larger tactics, tendency to, 76, 84
Sistova, 34
Skill of great commanders depends on appreciating moral forces, 1
Skirmishers. *See* Swarms
Skirmishing. *See* Open Order
Slowness of transport by railway for short distances, 27
Small campaigns as a training for larger, 94
Smokeless powder, ix
Solid formations. *See* "Close" Formations
Spicheren, 33
Spirit of armies, change of, affecting strategy, 18
Statesmen, importance to, of not gauging military ability by chance success, 21
Stragglers, importance of re-forming, 47
Strategic movements dependent on means of obtaining supplies, 13
—— combination dependent on time, distance, and resisting power, 15, 16
—— efforts to break up organism or strike at means of supply, 30
Strategical arm, 35
Strategy, definition of, 7, 24
—— has it changed, 7, 13
—— change in, when organised on regular supply, 13, 14
—— depends largely on supply, 13
—— affected by introduction of system of "line of communication" and "base of supply," 14
—— implements of, more completely changed than those of tactics since the time of Napoleon and Wellington, 14
—— like tactics, changes when its implements change, 14
—— the implements of, 14
—— when does it change, 14
—— affected by change in tactics, 15
—— affected by increased power of modern armies, 16
—— affected by changed spirit of armies, 17
—— of 1866 judged by Napoleon's axioms, 20
—— great principle of, 29
—— aims of, 32

Strategy and tactics, distinction between, 7
—— determined by nature of armies, 24
—— relation of, illustrated, 33
Stoffel, report on Prussian army, 111
Stuart as cavalry leader, 31
Study of war, great generals on,
Subordinate leaders, battle brought on by, in 1870, 18
Success, chance, as false gauge of ability, 21
Successive positions of artillery in modern fight, 73
Supplies, 25
—— continuity of, 28
Supply, base of, lines of, 14
—— difficulty of, with concentrated army, 36
—— of artillery ammunition, 74
Surprise an essential element of success, 35
Swarms of skirmishers, how brought about, 3

TACTICS, 42
—— and strategy, distinction between, 7
—— Sir E. Hamley's definition of, 7
—— change in, affected by breech-loader, 13
—— more affected than strategy by change of moral conditions of war, 13
—— Napoleon on changes in, 13
—— infantry, 42
—— modern, the great problem of, 46
—— artillery, 68
"Tactical Deductions," by Boguslawski, 111
"Tactical Retrospect of the War of 1866," 111
"Taktischen Mitte," 40
Tashkessen, battle of, 115
Telegraph as affecting strategy, 17
Tendency to a divorce between firing and manœuvring training in artillery, 68
—— to simplification of larger tactics, 76
"The Prussian Infantry in 1869," 111
Theoretical work, 50
Theory, confusion as to the term, 49
Time, exact adjustment of, difficulty of, 40
Tirnova, 33
Training peace. *See* Practice.
Trafalgar, news of, took seven weeks to reach Naples, 17
Training and organisation become substitutes for drill, 4
—— Prussian or German, nature of, 4, 5
Transport, 25
—— a definite "arm" of modern armies, 26
—— necessity of organised, 26
—— regimental, 26
—— necessity of, independent of railways, 28
—— in uncivilised countries, 41
Turenne, the only general, according to Napoleon, who constantly improved in management of campaigns, 11

UNCIVILISED countries, method peculiar to campaigns in, 41
Unexpected, the, in war, 35
United action, difficulty of securing under present conditions, 45
—— necessity for securing the power of, 1
Units of command, large importance of, 5
Unity of action, essential to secure, 6

VALUE of each arm in its proper place, 67
Van, 33
Volley-firing, difficulty of, in actual war, 60, 61
——great moral effect of, 61

WAR as an art, 22
—— changes in, due to change in arms, 1
—— moral forces supreme in, 1
—— theatre of, the province of strategy, 4
—— changes in general condition of, 14
—— *See* Art of War, or Study of War
—— game, value of, 24
—— of 1870 shows many mistakes of execution, 6
Waterloo campaign, Napoleon's concentration in, 36
—— "interior lines" in, 39
—— writers on, 100
—— how to study the, 105
—— French artillery fire at, 83
—— lectures, Chesney, 104

Weakness of line of communication, 28
Weissenbourg, 30, 33
Western Germany, literature of the campaign of, 109
Wellington, 39
Wellington's boast of being first-rate commissariat officer, 25
Widdin, 33
Woerth, 30, 32
—— French army at, never recovered efficiency, 30

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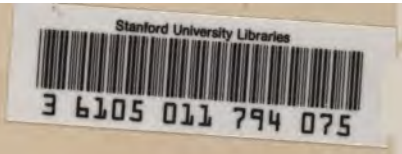

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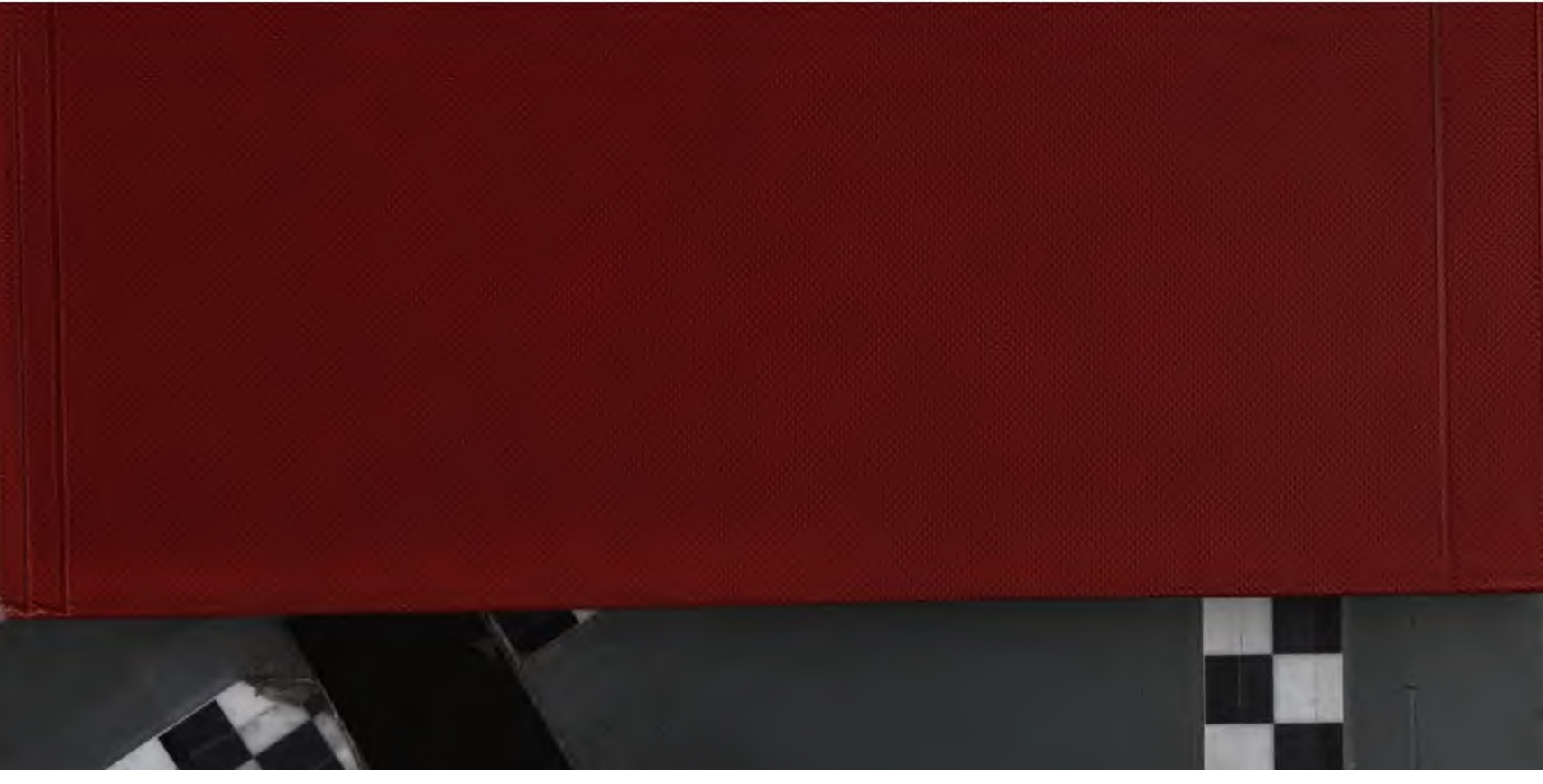
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